10¢ A COPY

The OIL WEEKLY

Exclusively Devoted To The Production and Transportation of Oil and Gas

Engineering News Statistics

January 31, 1930 **Volume 56. No. 7**

"I don't claim to 'know it all'— but you can't fool me on couplings"

AND when it comes to putting out couplings that are always reliable—always dependable—Harrisburg has the right system. "There's an outfit that makes its own steel, and operates its own rolling mills and forge shops. A company that controls every phase of coupling manufacture from open hearth furnace to finishing room. "And if you don't think that adds value to a coupling—try Harrisburg couplings and you'll change your mind."

DISTRIBUTORS
Harrisburg Pipe & Pipe Bending Co. of Texas, Inc., Houston, Texas

HARRISBURG PIPE & PIPE BENDING CO.
HARRISBURG, PA.
Fully Equipped with Our Own Open Hearth Furnaces, Rolling Mills and Forge Shops

Harrisburg Supply Co., Tulsa, Okla.

HARRISBURG
Forged Seamless Steel Couplings

Changing *Axelson's* name

The **Former** Name

AXELSON MACHINE COMPANY

The **New** Name

AXELSON MANUFACTURING CO., LTD.

THIRTY-EIGHT YEARS AGO Axelson Machine Company was founded. It has grown with the oil industry. Each year has witnessed consistent expansion. In recent years other industries have sought the services of Axelson in the making of fine gauges, dies, tools, castings, precision machine work, etc. In keeping with the progressive policy of the Organization and to permit more intensive application to the manufacture of various products, separate Production Divisions have been formed—under one control, as follows: Pump & Sucker Rod Division, Gauge & Tool Making Division, Special Product Division, Lathe Division. ¶To facilitate this expansion policy the Axelson Manufacturing Co., Ltd., has been formed as the successors to the Axelson Machine Company. The ownership and personnel remain identically the same.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

PRODUCTS:

OIL WELL PUMPS, SUCKER RODS, HEAVY DUTY LATHES, MACHINE TOOLS & FITTINGS, GAUGES & DIES, CASTINGS

OFFICERS:

JULE C. AXELSON, Pres. • DELBERT F. AXELSON, Vice Pres. & Gen. Mgr. • C. E. AXELSON, Executive Vice Pres. • CLYDE ELLWOOD, Vice Pres. & Sales Director • E. E. KERFOOT, Secy-Treas.

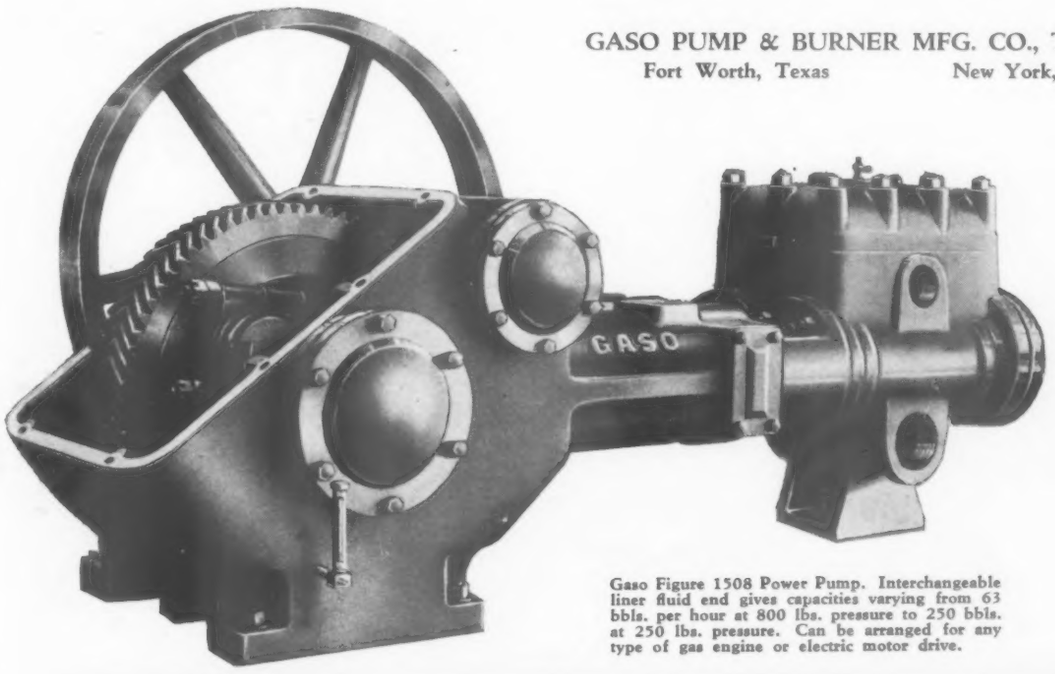
The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 10 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

The Latest Step of Progress .... in designing Oil Industry Pumps

THE difference between the old horse and buggy and today's splendid arrow of the sky is hardly greater than that between the oil field pumps of a few years ago and the GASO Fig. 1508 Timken Bearing Enclosed Power Pump.

In this pump scientific and skillful engineering has utilized every means to gain strength and to eliminate friction. Timken Roller main and pinion bearings, continuous tooth Herringbone gears, and flood lubrication with clean oil, are some of the features which insure notable efficiency and durability. Complete description on request.

GASO PUMP & BURNER MFG. CO., Tulsa, Okla.
Fort Worth, Texas New York, N. Y.



Gaso Figure 1508 Power Pump. Interchangeable liner fluid end gives capacities varying from 63 bbls. per hour at 800 lbs. pressure to 250 bbls. at 250 lbs. pressure. Can be arranged for any type of gas engine or electric motor drive.

GASO PUMPS
for every oil industry need

IDECO BOYKIN Traveling Blocks

Strength, speed and easy operation—the factors necessary to meet the ever-increasing demand for better drilling equipment.

The Ideco Boykin Traveling Block has already proven its superiority in the field. Familiarity with working conditions has governed its design. The number of parts are minimized. The block is streamlined so that no projections exist to catch on the finger board or interfere with speedy operation. Proportioned to prevent overturning or fouling of lines and heavy enough to fall rapidly in the derrick without load. Equipped with American Heavy Duty Roller Bearings for ease and speed and provided with Alemite lubrication.

A worthy companion to the Ideco Line of Drilling and Pumping equipment.

The International Derrick & Equipment Co., Columbus, Ohio—Los Angeles, Cal.

Plants: Columbus, Delaware, Ohio; Houston, Beaumont, Texas; Torrance, California. *Sales Offices:* Columbus, Ohio; New York City, N. Y.; Detroit, Michigan; Tulsa, Oklahoma; Ft. Worth, Houston, Texas; Shreveport, Louisiana; Wichita, Kansas; Denver, Colorado; Los Angeles, California; Maracaibo, Venezuela. *Warehouses and Yards:* Columbus, Ohio; Tulsa, Seminole, Tonkawa, Maud, Sasakwa, Allen, Oklahoma City, Oklahoma; Wichita Heights, Kansas; Bakersfield, Torrance, California; Houston, Big Spring, Odessa, Pyote, Borger, Mexia, Luling, Grand Saline, Wichita Falls, Orange, Seguin, Texas; Shreveport, Lake Charles, Oil City, Louisiana; El Dorado, Smackover, Arkansas.

Export Representation—74 Trinity Place, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, California.

705

This fine Sinclair shop is completely equipped with Landis Pipe Threading and Cutting Machines. It is but one of several Landis equipped units operated by the Sinclair Oil and Gas Company.

The shops of the leaders in the Oil Industry are usually equipped with Landis Pipe Threading and Cutting Machines because a Landis is better adapted for oil field work—it produces accurate, full-formed, correctly tapered threads—it is sturdy enough to stand the "gaff" for years—and it is fast enough to keep well ahead of rush jobs.

Why be satisfied with less—particularly when a Landis will save enough in tool cost alone to warrant its installation?

Write for Catalogue No. 31—"Landis Pipe Threading Machinery".

LANDIS MACHINE COMPANY

WAYNESBORO, PENNA., U. S. A.

"BJ"
ROCK
BIT
"a BIT ahead"
(Licensed Under Powell Patents Pending)
85 feet of hole in 15½ hours using one set of cones in exactly the same formation and depth as competitive rock bit drilled 84 feet in 88 hours using 11 sets of cones.
THE above is only one of the many records of the BJ Rock Bit in service. It was made in a well at Santa Fe Springs under ordinary operating conditions ◆ Test after test in actual service proves that the BJ Rock Bit makes many times more hole, under identical conditions, than any other rock bit ◆ Write us immediately for other detailed performance records and details of the BJ Gear-Driven, Self-Sharpening Rock Bit ◆ They are startling ... convincing ... evidence of BJ supremacy in any kind of drilling.
Oil Tool Division of
BYRON JACKSON CO.
2150 East Slauson Avenue, Los Angeles
Tulsa, Oklahoma City, Houston, Fort Worth, New York City

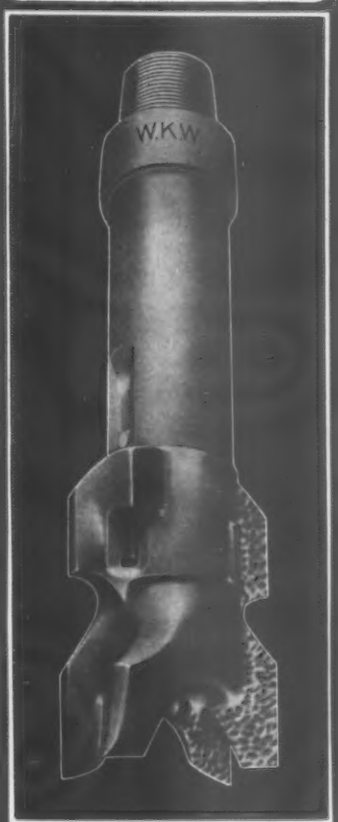
The STRAIGHT HOLE WINS

WIEMAN-KAMMERER-WRIGHT COMPANY, INC. ◆ pioneers in Multiple Tooth Bits ◆ now offer their latest and greatest development ◆ the Improved B-2 and the Model 5 Bits "the perfect combination for straight Hole Drilling."

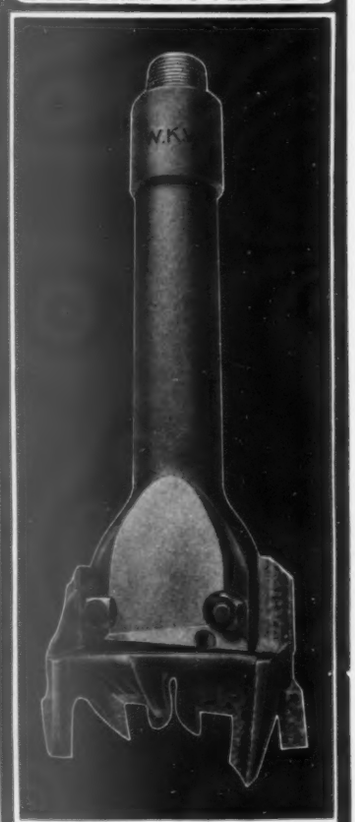
THE Model 5 is designed especially for drilling holes up to ten inches, while the Improved B-2 is for holes larger than ten inches in diameter.

WHILE the two bits vary somewhat in design ◆ the principle is the same, that is ◆ IT CUTS A CORE AND THEN DESTROYS IT. The outermost blades contact the formation first and the inside teeth slice off their portion as the bit is rotating. This type of bit can penetrate faster because only a small contact is made with solid formation ◆ and the core is much easier to destroy owing to its partial isolation from the solid earth.

THE MODEL FIVE



THE IMPROVED B-2

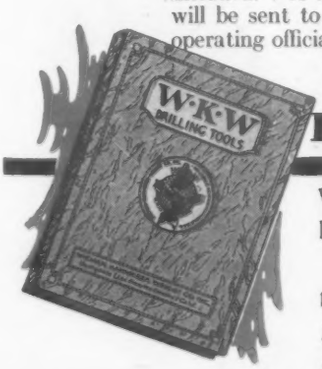


"GO STRAIGHT THROUGH THE EARTH"

A NEW Catalog—

ALL the facts about W. K. W. Drilling Tools have been assembled in this new catalog. New products are fully illustrated and complete price lists data, etc., are included. ◆ A copy of this catalog will be sent to any executive or operating official

upon request



WIEMAN-KAMMERER-WRIGHT CO., INC.
Hollydale [Los Angeles Co.] California

WIEMAN-KAMMERER-WRIGHT CO., INC.,
Hollydale (Los Angeles County) California

Gentlemen: Send me, with your compliments, a copy of your new catalog.

*Name*_____ *Position*_____

*Company*_____ *Address*_____

The HIGHER STANDARD

Spang (patented) Weldless Jars are standard equipment for all tools in all fields. Over 300 leading supply stores carry Spang Weldless Jars in Stock.

SPANG & COMPANY
BUTLER, PA.

SPANG

WELDLESS JARS

"For every joint on every line"

A FEW OF THE COMPANIES USING VICTAULIC COUPLINGS

•

Standard Oil Company of New Jersey
Sinclair Oil & Gas Company
Pan American Petroleum Company
Texas Pipe Line Company
Shell Petroleum Company

•

Associated Gas & Electric Co.
Hope Natural Gas Company
Kansas Osage Gas Company

•

Anaconda Copper Mining Company
Tennessee Copper Company
St. Joseph Lead Company

•

Bucyrus Company
Merritt, Chapman & Scott Co.
American Cyanamid Company

"For every joint on every line"

For all sizes of steel, wrought iron, cast iron and spiral weld pipe — any pressure. Mail the coupon for detailed information.

VICTAULIC COMPANY OF AMERICA
26 Broadway New York

FLEXIBLE LEAK-PROOF

VICTAULIC

REG. U. S. PAT. OFF.

PIPE COUPLINGS

VICTAULIC DISTRIBUTORS

Mid Continent
HANLON-WATERS, INC.
Tulsa, Oklahoma

Coast
DUCOMMUN CORPORATION
Los Angeles, California

Western Pennsylvania
PITTSBURGH SUPPLY COMPANY
Pittsburgh, Pennsylvania

Illinois, Indiana
BELL and GOSSETT
Chicago, Illinois

Ohio
CASE HARDENING SERVICE CO.
Cleveland, Ohio

Minnesota, Wisconsin, Iowa
F. S. VAN BERGEN
Minneapolis, Minnesota

Canada
D. B. McWILLIAMS
Toronto, Canada

West Virginia and Kentucky
THE McJUNKIN SUPPLY CO.
Charleston, West Virginia

FOR CRUDE OIL GAS WATER SEWAGE COMPRESSED AIR ETC.

For uses, installations, specifications and prices, fill in and mail this coupon.

VICTAULIC COMPANY OF AMERICA
26 Broadway New York

Please send me Victaulic Bulletin No. 8

Name.....

Address.....

PENNTEX

The BETTER Oil Field BELT

A stronger belt is safer and lasts longer.

PENNTEX is the strongest belt made. The double thickness tests over 3000 pounds per inch width; triple, over 3500.

The triple can safely be used over clutch pulleys as small as 16-inch diameter. The double is safe for even smaller pulleys.

Victor Balata & Textile Belting Co.

38 Murray St.
NEW YORK, N. Y.

Factories
EASTON, PA.

345-359 W. Austin Ave.
CHICAGO, ILL.

Field Representatives

F. C. MORRIS
Post Office Box 1777
TULSA

R. E. MARTIN
Lee Hotel (Phone 2-0064)
TULSA

A. P. LACEY
311 W. 4th St. (Phone 911)
ELDORADO

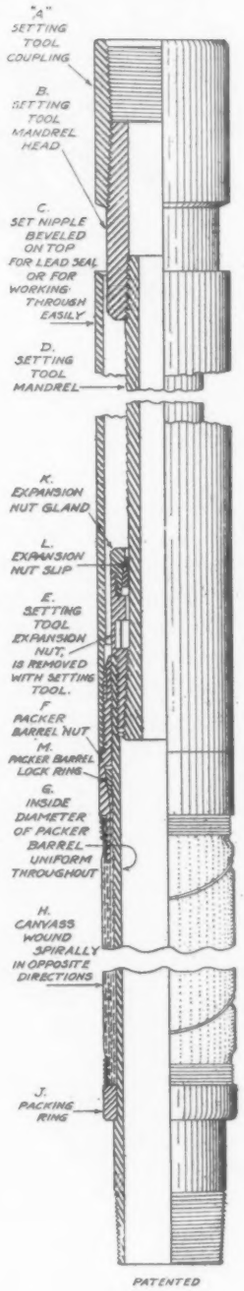
J. BACKUS
839 West Craig St.,
SAN ANTONIO

The T-I-W LINER PACKER can get loose no matter how little screen is set

That the T. I. W. Liner Packer can get loose no matter how little screen is set was proven recently when a packer was easily gotten loose from one joint of screen in a 5,000 foot well at Pierce Junction. The T. I. W. Liner Packer is invaluable to anyone wishing to make a series of tests in wells in new territory as the packer can be set and removed so easily.

There is no guess work in setting the T. I. W. Liner Packer. The Driller knows definitely that his liner is on the bottom and perfectly set.

It is not necessary to pick Liner up off bottom to set T. I. W. Liner Packer. Merely set your liner and spud in to seat, then rotate to right and when Packer is set it is very easy for the driller to tell definitely how much the packer has expanded by his measurements on the drill stem after Setting Tool has been released. Driller knows definitely when Setting Tool releases.


"A" SETTING TOOL COUPLING
B. SETTING TOOL MANDREL HEAD
C. SET NIPPLE BEVELED ON TOP FOR LEAD SEAL OR FOR WORKING THROUGH EASILY
D. SETTING TOOL MANDREL
K. EXPANSION NUT GLAND
L. EXPANSION NUT SLIP
E. SETTING TOOL EXPANSION NUT, IS REMOVED WITH SETTING TOOL.
F PACKER BARREL NUT
M. PACKER BARREL LOCK RING
G. INSIDE DIAMETER OF PACKER BARREL UNIFORM THROUGHOUT
H. CANVASS WOUND SPIRALLY IN OPPOSITE DIRECTIONS
J. PACKING RING
PATENTED

T.I.W. LINER PACKER AND SETTING TOOL, ASSEMBLED

Drill stem is rotated only to the right to set T. I. W. Liner Packer. Inside diameter of Liner Packer is the same as pipe below and is not reduced if a full string is later set above Packer.

The Liner Packer may be pulled easily at any time without using Setting Tool. Use either spear or steel tap into the set nipple and rotate to right. This contracts packing until it is practically the same as when originally wrapped. Packer can then be removed easily.

The Packer has no dogs to hang up or freeze, but sets with solid collar. Packer can be tested with pump to make sure of seat.

4 to 1 Safety Factor as regards strength and durability.

Blue prints and instructions for setting packers furnished with each packer shipped. Experienced well men will set packer where requested.

Write Today for Folder.

TEXAS IRON WORKS
SALES CORPORATION

1401-1423 *Maury Street* HOUSTON, TEXAS

Vital Metallurgical Principles Give Exceptional Qualities to Quasi-Arc Welds

For Better Welds

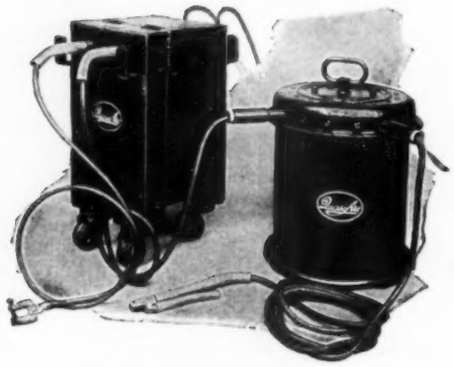
THE deposition of weld metal with Quasi-Arc Electrodes takes place under protective means similar to those employed in any process of producing steel.

Quasi-Arc Electrodes have a blue asbestos coating which melts evenly with the steel core, producing a perfect envelope of liquefied and vaporized slag which completely protects the melting metal from attack by atmospheric gases. The hot slag solidifies and remains as a crust on the surface of the weld metal, creating an annealing effect which is mainly responsible for the fine-grained metal characteristic of Quasi-Arc Welds. This slag crust is very brittle after cooling and is quickly removed with a chipping hammer and wire brush.

Quasi-Arc welding requires the very low current of 70 to 120 amperes, which avoids the overheating that with ordinary electric welding so often renders the base metal brittle and unreliable.

An idea of the unequalled quality of Quasi-Arc Welds may be had by comparing them with oxy-acetylene. Ordinarily, oxy-acetylene welding is considered to be superior, as well as more expensive, to electric welding. However, it has been proven that a normal Quasi-Arc weld made by an average welder is as good in every respect, as the finest weld obtainable with oxy-acetylene. Furthermore, Quasi-Arc welds are made in less than half the time. This is due to the scientific design of these electrodes, which assures a smooth easy deposition of metal, practically eliminating the human element. Heretofore, this "human element" has been one of the greatest obstacles to the progress of electric welding.

Give us an opportunity to prove these claims. Our field engineers and instructors will demonstrate Quasi-Arc Electrodes in your shop. You will be under no obligation.



Quasi-Arc Type A.C. 70a
Air-Cooled Set

Quasi-Arc Incorporated

11 West 42nd Street, New York, N. Y.

CLEVELAND

CHICAGO

TULSA

LOS ANGELES

Representatives in 27 of the World's Largest Industrial Centers

WALWORTH

Iron Body–Wedge Type

GATE VALVES

CAREFUL DESIGN...

assures perfect seating of the wedge...

Iron Body—Bronze Mounted or All Iron

125 lbs. Steam Working Pressure

"If Continental Sells It.... There Is No Better"

THE CONTINENTAL SUPPLY CO.
General Offices: ST. LOUIS

THE CONTINENTAL SUPPLY CO., Ltd.
224 Traders Building, Calgary, Alberta, Canada

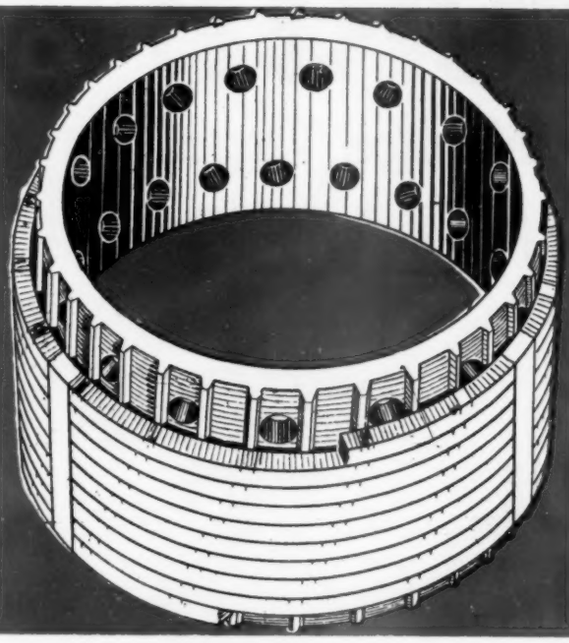
Export Offices
CONTINENTAL EMSCO COMPANY, Inc.
74 Trinity Place, New York
London Offices: 316-17 Dashwood House, Old Broad St., E. C. 2

CONTINENTAL

A brief study of the illustration in this ad will prove this statement. Note that the entire area of the pipe is screening surface. Ribs keep the wire away from the pipe giving greater receptive capacity and more room and freedom between the wires and the perforations in the pipe than any other screen. No small receptacles or grooves to clog up.

Why Reduces Sand Cutting

The inlet velocity is reduced due to the increased screening area and large receptive capacity. At a given pressure in the well greater volume of fluid is allowed to pass through the screen and fluid friction is considerably reduced. This reduced velocity gives longer life to the screen by reducing sand cutting.



Gauge does not increase with wear with the Stancliff Screen

Note (in the illustration at the left) that the square wires will keep the same distance apart when the tops are worn. This is a big advantage over screens where the distance between the wires is greater at the outlet than at the inlet, which condition causes the gauge to increase as the sand wears down the wires. Because the distance between the wires is the same at the top and bottom, the STANCLIFF SCREEN KEEPS ITS GAUGE.

Does not Clog Up When Cleaning

The parallel spacing between the wires facilitates cleaning the strainer. There is no chance to clog up under pump pressure when cleaning as is the case with some other screens not made with square-faced wire.

GREATEST SCREENING SURFACE MAKES *STANCLIFF* FASTEST SCREEN

Evidence to Prove Stancliff Strongest Wire-Wrapped Screen

Compare with others and see how the *Stancliff excells in strength.*

In order to get receptive capacity some competitors groove the pipe, thus weakening it. With the STANCLIFF SCREEN, the pipe is actually strengthened by the ribs that are run up and down the outside of the pipe to give an expansive receptive capacity between the wrapped wire and pipe. *This gives the double advantage of more strength and faster screening.*

THE MONEY POINT

OIL MEN! You should give the utmost attention to the screen you buy. Remember that the screen is at the point of contact between the oil sand which has potential value and oil which has real value. The screen is at the MONEY POINT.

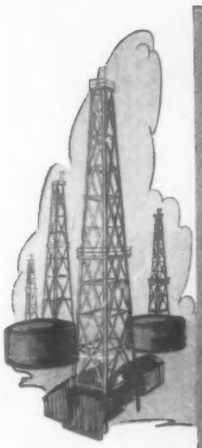
THE STANCLIFF SCREEN is superior from every test. Keep up your oil production. For fast and steady screening use the STANCLIFF SCREEN.

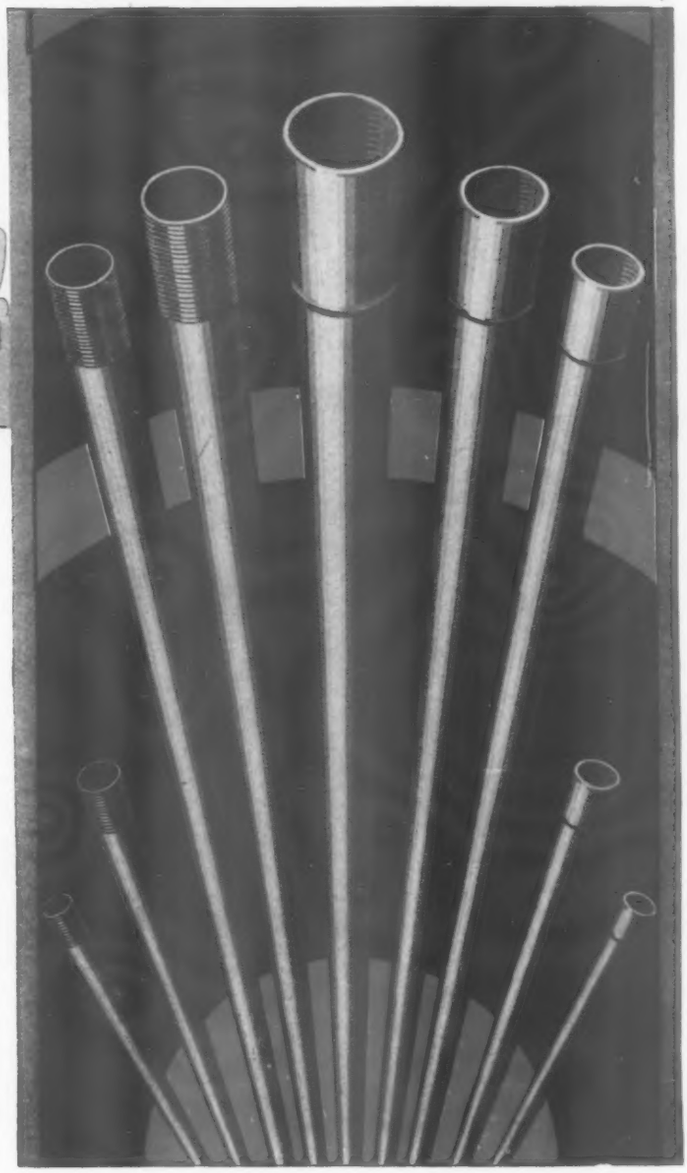
Write for Complete Information

HOWARD SMITH COMPANY

2412 Railroad Avenue at Sawyer Street

Phone P. 0131 HOUSTON TEXAS P. O. Box 688





SPANG

WELDED

CASING
STANDARD PIPE
LARGE O. D. PIPE
LINE PIPE
DRIVE PIPE
DRILL PIPE

Sizes ⅛ inch to 24 inch O. D.

STANDARD

SEAMLESS

CASING
TUBING
DRILL PIPE
(Regular and Heat Treated)
LINE PIPE
STILL TUBES

Sizes 2 inch to 13⅜ inch O. D.

Since 1828

STRONG yet DUCTILE,

No matter what you consider important in pipe, Spang Pipe has it. Take strength, for example. Every length of "Spang" Welded and "Standard" Seamless Pipe is tested to withstand pressures higher than you will ever subject them in service —That means the maximum factor of safety for any emergency.

Another thing, you will like about Spang Pipe is the soft, easy working quality of the special steel —saves time and labor.

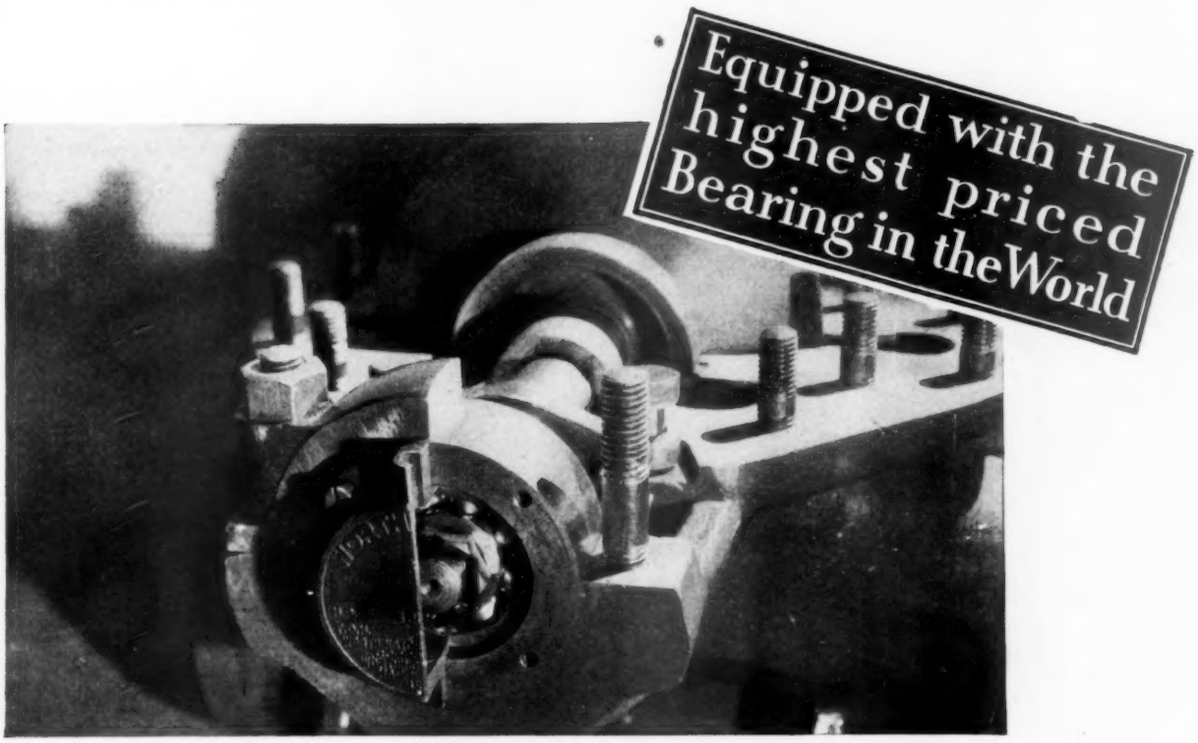
SPANG, CHALFANT & CO., INC.

General Offices: **CLARK BUILDING, PITTSBURGH, PA.**

Sales Offices: CHICAGO, ILL. NEW YORK, N. Y. ST. LOUIS, MO. PITTSBURGH, PA. TULSA, OKLA. LOS ANGELES, CAL.
Welded Mills: ETNA, PENNA. SHARPSBURG, PENNA. ***Seamless Mills:*** AMBRIDGE, PENNA.

ANOTHER MANUFACTURER IN THE PUMP INDUSTRY THAT USES SKF BEARINGS

WORTHINGTON PUMP AND MACHINERY CORP.



GOOD PUMPS STAY GOOD WITH SKF BALL BEARINGS

IT is axiomatic that pumps...no matter what industry they are used in...must be dependable. To be so they must be built right from the start. That means ultimate service on the job must be placed above any small saving on any part in the construction of the machine. Worthington figures every part is a vital one . . . and uses SKF Ball Bearings.

Three things SKF Ball Bearings bring to pumps . . . initial clearances maintained indefinitely for long-life SKF Bearings show hardly a trace of wear in the severest service; smooth, quiet operation without destructive vibration is assured; and watertight enclosures keep lubricant in for long periods materially reducing maintenance. Figured on a basis of per 1000 gallons of liquid pumped, SKF are lowest in cost per bearing hour.

SKF INDUSTRIES, INC., 40 East 34th Street, New York, N. Y. 2457

EQUIPPED WITH THE HIGHEST PRICED BEARING IN THE WORLD

Means just this

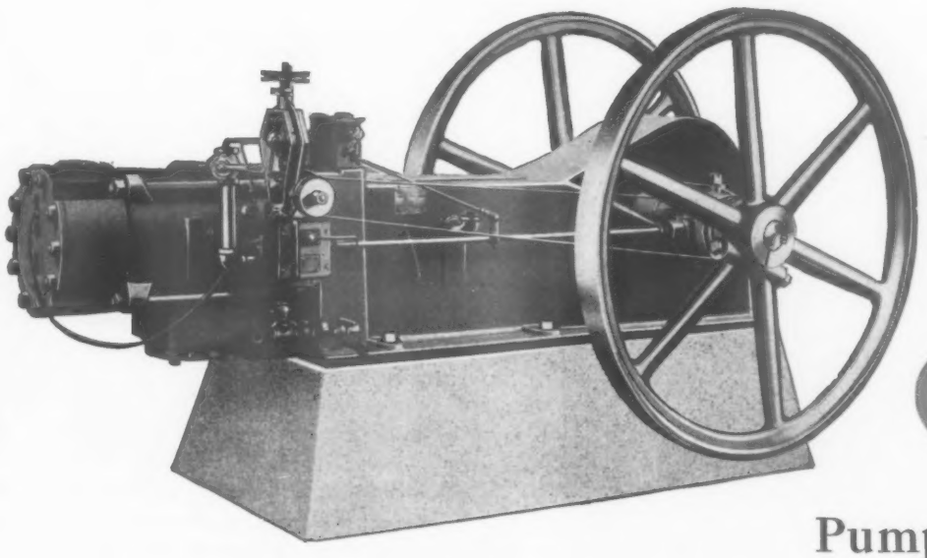
SKF

Ball and Roller Bearings

That the manufacturers whose product is illustrated above preferred to pay more for their bearings and less for servicing or replacing them. They preferred to pay a higher price in the beginning than many times this higher price in the end. And, finally, they preferred to economize by using SKF bearings because they are made to do their job, not to fit a price list.

Oil Weekly, 1-31-30

FRANKLIN



O. G.

Pumping Engine

—if you are judged by the company you keep—

First We pride ourselves on the fact that the users of the O. G. Pumping Engine are about the shrewdest, most exacting of power buyers.

Second Repeat orders on the O. G. indicate the wisdom of their choice: the simplicity, strength, economy and fine design delivers top performance that means low lifting costs.

Third The O. G. Pumping Engine is at the head of the class—as is the O. F. Oil Drilling Engine. We invite the investigation of critical power purchasers.

FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Pa.

DISTRIBUTED BY THE OIL WELL SUPPLY COMPANY

For More Oil Profits

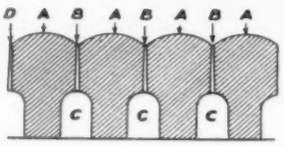
GETTY
Solid Wrapped Screen

CONTROLS THE SAND

Rigid construction plus extreme accuracy of spacing gives complete control of the sand and assures the GETTY SCREEN remaining accurate after installation in the deepest wells regardless of the grief encountered while passing down by the rocky walls of crooked holes. The abrasion on the walls of the hole has little or no effect.

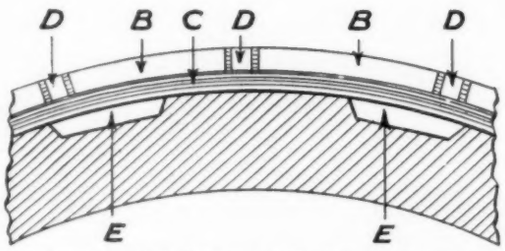
SCREENS FAST

Fast screening is due to a construction that provides for the greatest degree of freedom for the travel of liquids from the point of entry to that of discharge at the interior of the pipe. STUDY CAREFULLY THE ILLUSTRATIONS SHOWN HERE AND NOTE THE ADVANTAGE IN SCREENING CAPACITY OVER OTHER SCREENS.



Enlarged View of Wires in Cross Section

On account of the rounded top of the wire, the points A-A-A-A receive the abrasion as the strainer passes down the rocky sides of a crooked hole, and the edges of the entry slits B-B are protected. The broad, square-faced lugs, "D" hold the wires immovably in place. The entry slit "B" is slightly larger at the discharge side where the fluid enters the passage way "C" thus permitting the fluid to pass between the wires to the vertical grooves E-E running lengthwise in the surface of the screen pipe.



Enlarged End View of Portion of Screen

STRENGTH

The exceptional structural strength of the IMPROVED GETTY SOLID WRAPPED SCREEN is due to a superior method of construction developed by Getty. One of the features consists of rolling the mesh of the screen into a T-head of the wire forming solid, substantial, square-faced spacing lugs. During the coiling process, the wire is under severe tension and strong lateral pressure so as to grip the pipe with great firmness, each coil itself being held in a vise-like grip by adjacent coils. The wrapping is thereby secured immovably in position.

As evidence of this strong construction, in localities where the gas pressure is hard to control, the Getty Screen has been used successfully as a drill stem to drill down into place where it is set and the well finished.

Write for Complete Information.

FRED I. GETTY

Cable Address: **FIGOIL**

JENNINGS, LA.

Telephone **129**

DONOVAN BOILERS

ARE CONSISTENTLY GOOD

THE large dome over the firebox is strong and assures a large supply of dry steam. It is stay-bolted solidly to the crown sheet and not to a neutral sheet.

The mud ring, machine-flanged, assures uniform thickness and strength where needed.

The small tube holes in the fire box head assure a driving fit and longer service for the tubes, for the full thickness of the tube walls is thus left in them.

The flanged and welded door frame eliminates seams, and is less likely to burn and leak.

The safety valve connections are simpler and neater. They eliminate a lot of fittings. The valves connect into the dome head directly. No intervening fittings required.

Hand hole plates are of ample number and size and so spaced as to facilitate cleaning. They are A.P.I. Std. and interchangeable.

The workmanship and finish are high grade, the external evidence of inherent quality. See it for yourself.

Look over a DONOVAN the next time you need a boiler. If you are not already a user, it will pay you to try a DONOVAN. They are as good as they look.

First Choice of the Men Who Use Boilers

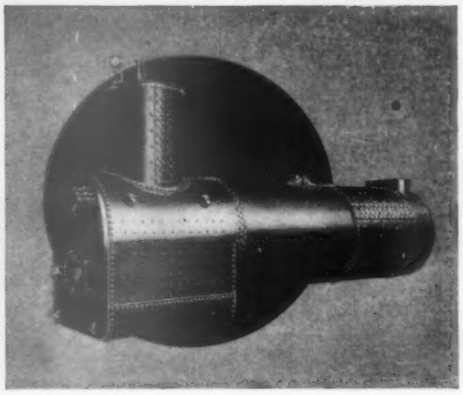
THEIR QUALITY IS APPARENT

Manufactured by

DONOVAN BOILER WORKS, INC.

PARKERSBURG, W. VA.

NEW YORK OFFICE—30 Church Street
FRICK-REID SUPPLY CORPORATION
Mid-Continent and Eastern Distributors
GREAT NORTHERN TOOL & SUPPLY CO.
MIDLAND IRON WORKS
Montana Distributors
All Leading Supply Houses Throughout the Eastern Fields Handle
DONOVAN QUALITY PRODUCTS
NONE BETTER



THAT DEPENDABLE BUT SULKY SERVANT— STEEL

During the past 25 years, the A. O. Smith Corporation made new use of the engineering knowledge gained through the ages from that dependable, but sulky servant—steel. It wrested from him new secrets of behavior under certain conditions. It applied this knowledge to the development of new products and mechanization of processes that bring mankind greater freedom from manual labor, and, through the industries we serve, greater enjoyment and security in life.

The future—the immediate future—holds still more.

A. O. SMITH CORPORATION

General Offices: Milwaukee, Wisconsin, U. S. A.

OIL AND GAS FIELD PRODUCTS DIVISION

District Offices: New York · Tulsa · Houston · Los Angeles

SMITH*WELDED*

PIPE and STILLS

HAZARD

INTRODUCING FLEXSET

a Preformed Wire Rope of Dependable Hazard Quality

THE value of preforming as a means of increasing efficiency and lowering costs, by materially lengthening wire rope life, has been conclusively proven in rotary drilling and many other oil field applications.

Hazard adopted this preforming principle for certain ropes over a year ago. Thousands of Hazard preformed ropes were placed in service in the oil and other industries, and operated and tested under the severest conditions.

Compared with the best service obtained from other ropes on each operation, Hazard preformed rope gave an increase varying from 50 to 250%—but an increase, *always.*

This proven preformed rope—built to Hazard's rigid specifications—is now offered through Hazard's branches and distributors—making available for your immediate use a preformed rope of *Dependable Hazard Quality.*

Ask for it by the name—Flex-Set.

HAZARD WIRE ROPE COMPANY
WILKES-BARRE PENNSYLVANIA

1625 South Troost Avenue, TULSA, OKLA.

New York Pittsburgh Chicago Denver Los Angeles San Francisco Birmingham

DISTRIBUTORS

BOVAIRD SUPPLY CO.
904 Mid-Continent Bldg., Tulsa, Okla.
Borger, Texas; Beggs, Maud, Sapulpa, Seminole, Tulsa, Oklahoma; Independence, Wichita Heights, Winfield, Kansas.

CAMERON TOOL & SUPPLY CO.
Cameron, W. Va.

CROTTY & CO.
Parkersburg, W. Va.

DANSER SUPPLY CO.
Weston, W. Va.

FORT WORTH WELL MACHINERY & SUPPLY CO.
Cody, Kemmerer, Wyoming; Kevin, Billings, Montana; Fort Worth, Texas.

GREAT NORTHERN TOOL & SUPPLY CO.
Billings, Mont.

HOUSTON OIL FIELD MATERIAL CO., Inc.
Houston, Texas.

LONGHART SUPPLY CO.
619 Petroleum Bldg., Fort Worth, Texas
Big Springs, Graham, McCamey, McLean, Pampa, Pyote, Ranger, Rankin, Santa Rita, Texas.

MID-CONTINENT SUPPLY CO.
Fort Worth, Texas.

MOUNTAIN IRON & SUPPLY CO.
Parkersburg, W. Va.; El Dorado, Eureka, Madison, Valley Center, Wichita, Kansas.

PRICHARD SUPPLY CO.
Mannington, W. Va.

PRODUCERS SUPPLY & TOOL CO.
Marietta, Ohio; St. Mary's, W. Va.; Fort Worth, Olney, Graham, Coleman, Muenster, Texas. Bristow, Oklahoma.

UNITED OIL WELL & SUPPLY CO.
Los Angeles, Cal.

PROTECT YOUR WIRE LINES WITH 269 INSULINE

OPEN VIEW
"D-H" Wire Line Lubricator for use with 269 Insuline

LUBRICATION that penetrates to the very core of your wire lines . . . a paint-like film that KEEPS this lubrication INSIDE, and prevents it from being dissolved or washed off . . . that is the kind of PROTECTION you can give your lines with 269 INSULINE and a "D-H" WIRE LINE LUBRICATOR.

It requires less than 5 minutes extra time to apply . . . just close the Lubricator around your lines after every sixth tower . . . set it on casinghead, and pump 269 INSULINE from drum to Lubricator under 2½ lbs. pressure.

Operators who follow this practice regularly, are more than DOUBLING the service of their wire lines.

NORVELL-WILDER SUPPLY CO.

Distributors

Beaumont — Houston — Fort Worth — Shreveport

PORTABLE STEEL BUILDINGS
OIL FIELD TANKS

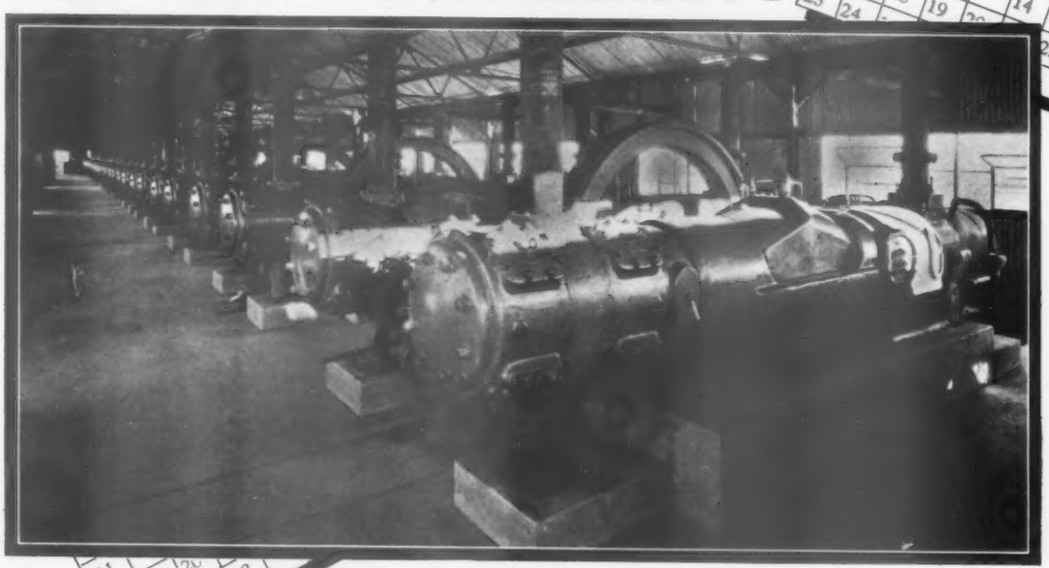
DRANE-HUMPHREY COMPANY INC.

D-H WIRE LINE LUBRICATOR

CORROSION RESISTING PAINTS

PETROLEUM BLDG. FT. WORTH — SAN ANGELO, TEXAS

Every Day's a Holiday for the Mechanics



in Plants Equipped *with* CLARK SUPER 2's

CLARK Super 2-Cycle Compressors yield unusually high monthly running time — 99% plus.

Rugged 2-cycle construction — a simple governor — oversize bearings — entirely automatic lubrication, with layshaft and all other gears enclosed and running in oil — are features which minimize maintenance cost and shut-down expense in CLARK equipped plants.

Also the Super 2 operates on 1/3 less fuel than ordinary 2-cycle machines. Ask for full particulars. ticulars.

CLARK BROS COMPANY, Olean, N. Y.
Export Office: 150 Broadway, New York City
Mid-Continent Sales Offices:
Tulsa and Fort Worth
Warehouses:
Tulsa; McCamey and Sweetwater
Texas; Artesia, N. M.
California:
Smith, Booth, Usher Company
228 S. Central Ave., Los Angeles

Compressors and Gas Engines

CLARK

Bearding the Lion in His Den

High pressures have a beastly way of becoming unruly at times. They want to get out in the worst way and proclaim their might. But with Darling Forged Steel Valves on guard the most treacherous offenders cannot get by.

Why not invest a trifle more in the safety which Darling Forged Steel affords? You have too much at stake to ignore this protection. *Catalogue on request.*

Darling Valve & Manufacturing Company
Williamsport, Pa.

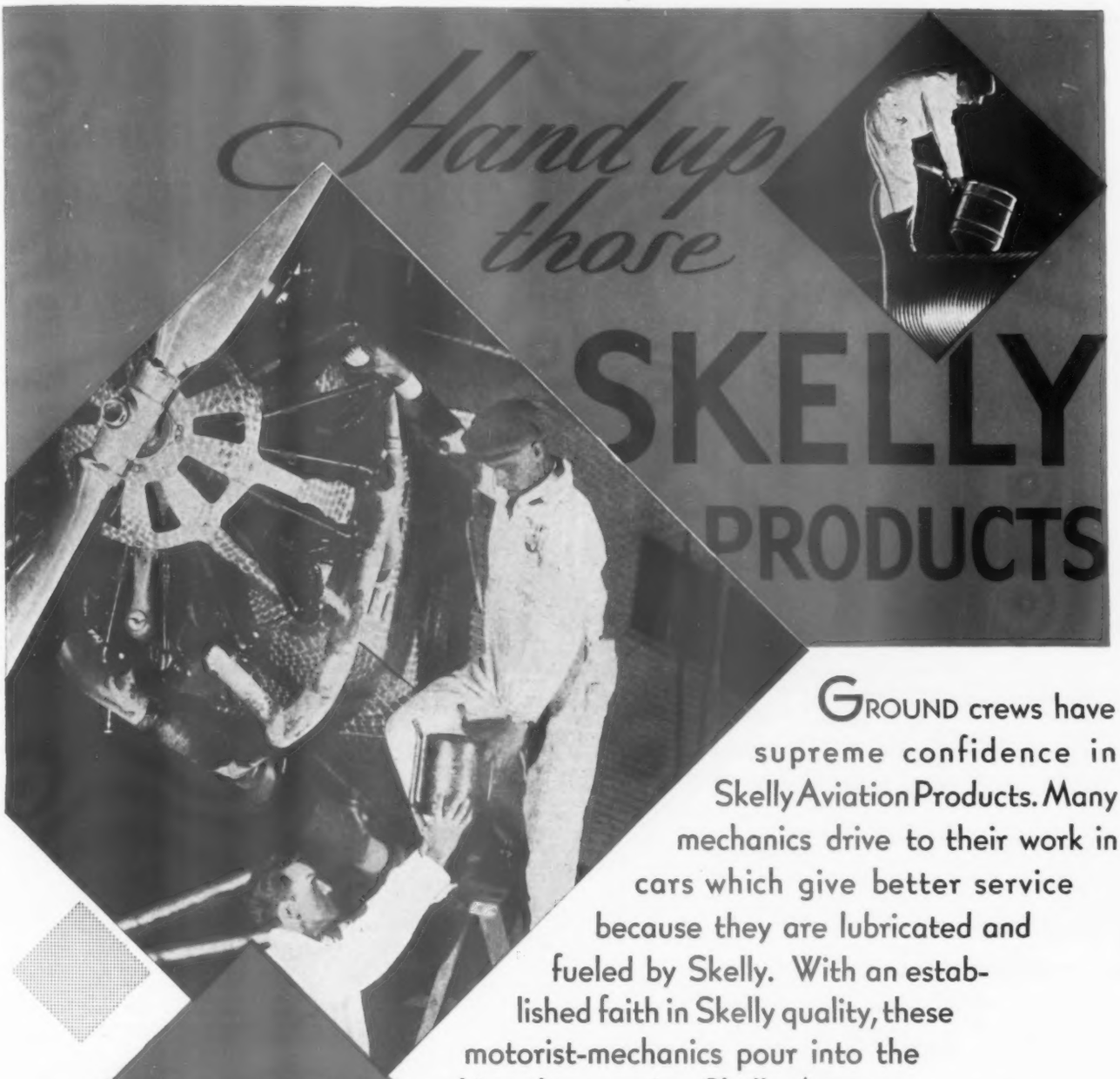
NEW YORK CHICAGO OKLAHOMA CITY HOUSTON

Mid-Continent Distributors:
Frick-Reid Supply Corp. Petroleum Supply Co.
International Supply Co.

California Distributor:
Petroleum Equipment Company, Los Angeles

Foreign Sales Manager:
H. M. Hein, Room 1405, 152 West 42nd St., New York.

DARLING
GATE VALVES



GROUND crews have supreme confidence in Skelly Aviation Products. Many mechanics drive to their work in cars which give better service because they are lubricated and fueled by Skelly. With an established faith in Skelly quality, these motorist-mechanics pour into the ships they service Skelly Aerodynamic Gasoline and Skelly Airplane Oil, sharing the confidence of pilots who have tested these products aloft.

SKELLY AERODYNAMIC GASOLINE

SKELLY AIRPLANE OIL

AVIATION SALES DEPT.,
SKELLY OIL COMPANY
TULSA, OKLAHOMA

SKELLY

Guaranteed

to take more punishment than any tool joint you have ever used

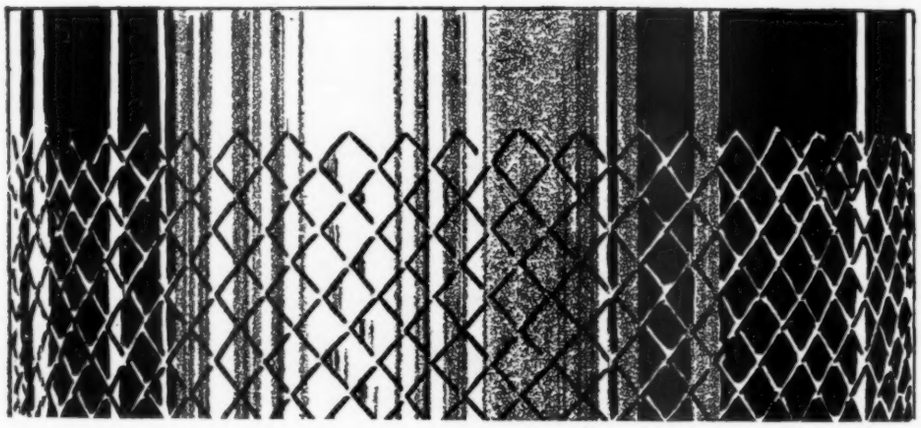
The power to withstand great punishment is built into Brewster A. P. I. Shouldered Tool Joints. In use by all drill pipe manufacturers, this same "V" type thread is naturally preferred because of its amazing durability.

Brewster A. P. I. Shouldered Tool Joints are scientifically Heat Treated, perfectly fitted and thoroughly inspected. All threads are automatically milled, giving absolute accuracy.

Our forgings are made by the largest maker of tool joint forgings in the United States, who have made 90% of the forgings for the trade in the last ten years.

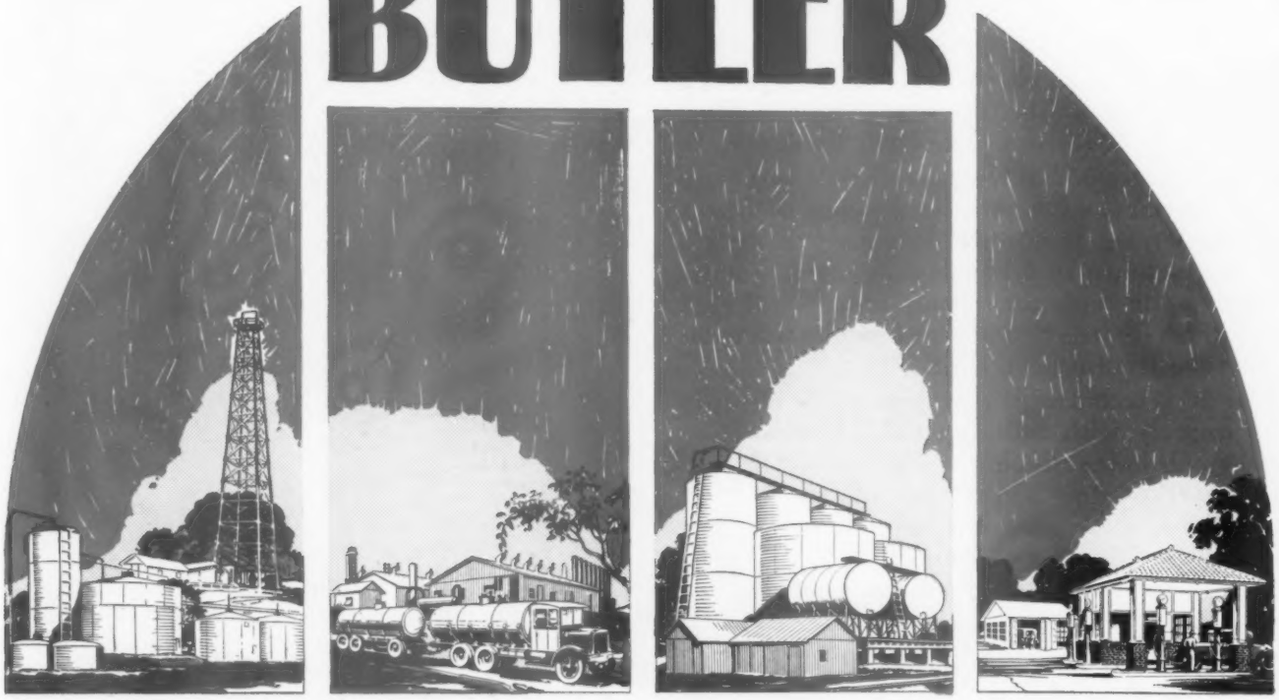
Besides A. P. I. Shouldered Tool Joints, BREWSTER PRODUCTS include: Perfection Core Barrel; Chrome Nickel Drill Collars; Six Blade Rock Bits; Special Fish Tail and Gumbo Bits; Core Barrel Cutter Heads for both hard and soft formations — the hard formation cutter heads are faced with a substance of diamond-like hardness.

The Brewster COMPANY~INC.
SUCCESSORS TO OIL CITY IRON WORKS, INC.
Shreveport, Louisiana



A complete stock carried at these branch warehouses: Oklahoma City—Red Ball, Inc., 2-4 E. California St., Phone W. 3680; Houston — 2000 Harrington St., Phone Capitol-3021. *Distributors:* Wilson Supply Co., Houston and Beaumont, Texas; Murray-Brooks Hdw. Co., Lake Charles, La.; T. T. Word Supply Co., Houston, Texas and Lake Charles, La.; The Ellis Iron Works, Inc., El Dorado, Arkansas.

BUTLER



EQUIPMENT

HANDLES OIL AND GASOLINE ALL THE WAY FROM OIL WELL TO MOTOR CAR

From wells in practically every oil field, much of the crude oil flows or is pumped into *Butler Oil Field Tanks*

Flow tanks, work tanks, treating tanks, stock tanks and lease tanks of Butler manufacture fulfill every oil field requirement. Capacities range up to 10,000 barrels—welded or bolted construction.

Many activities of the oil fields are sheltered in *Butler Ready-made Steel Buildings* such as rig power and belt houses, pump houses, flowing plants, supply depots, warehouses, bunk and mess halls, field offices and dwellings.

From refineries, housed in *Butler Ready-made Steel Buildings,* gasoline and oil may be transported in *Butler Highway Tank Trains* to bulk oil distributing stations which are completely assembled with *Butler Welded Storage Tanks* and *Butler Ready-made Steel Buildings* and fitted by *Butler* with *loading, unloading* and *pumping equipment.*

From these 100% *Butler Bulk Oil Stations, Butler Truck Tanks* carry gasoline and oils to service stations, sheltered in *Butler Ready-made Steel Buildings,* where they are delivered from *Butler Underground Tanks* into motor car tanks by *Butler Visible Pumps.*

Even the tractors and engines on farms and at construction projects are supplied fuel and oil from *Butler Tractor Tender Tanks* or from *Butler Steel Barrels* by means of *Butler Buckets and Funnels.*

BUTLER MFG. COMPANY

KANSAS CITY MISSOURI — MINNEAPOLIS MINNESOTA

STEEL BUTLER PRODUCTS

Two ways to cut costs in oil finding, with Sullivan Core Drills

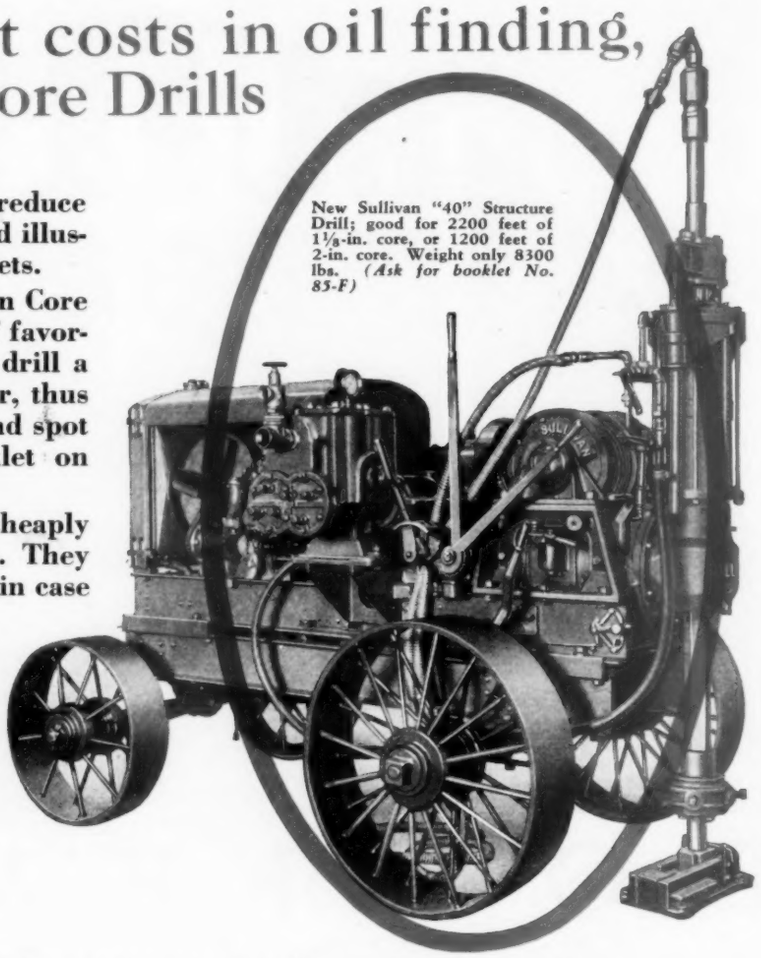
Two ways in which shrewd oil men now reduce the cost of oil finding, are described and illustrated in new Sullivan Core Drill Booklets.

Before a tract of land is leased, Sullivan Core Drills reveal the presence or absence of favorable structure. It is only necessary to drill a few holes down to a key bed or marker, thus enabling the geologist to map trends and spot favorable highs. Send for new booklet on Structure Drilling No. 85-K.

Then deep tests for oil, are also made cheaply and quickly with Sullivan Core Drills. They drill small holes which are reamed out in case of a strike—for a fraction of the money saved on the dry holes. And there is no danger of running by a producing sand with a Sullivan Core Drill.

New Sullivan "21," and "40" structure drills, and the new Sullivan "60" for deep tests and wildcats, are described in new Sullivan Booklets.

Send for Booklet 85-H and 85-K



New Sullivan "40" Structure Drill; good for 2200 feet of 1⅛-in. core, or 1200 feet of 2-in. core. Weight only 8300 lbs. *(Ask for booklet No. 83-F)*

Repressuring, tank erection, pipe trench digging, done quicker with Sullivan Air Power Equipment

Left to Right: Sullivan 39-lb. Rotator Rock Drill, Sullivan Concrete Breaker, Sullivan Clay Spader. *(Ask for the Bulletins)*

REPRESSURING SERVICE

Sullivan single stage "WG-6" Compressors are popular for repressuring service, to 120 lbs. pressure. Capacity 68 to 300 cu. ft. per min. They are practically automatic, and run for long periods without attention. Catalog 83-I.

PIPE TRENCHING

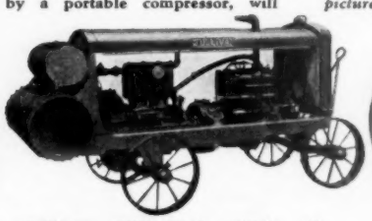
A Sullivan Vibrationless Portable Compressor and a Sullivan Rock Drill, Concrete Breaker, and Spader—will cut your time and costs on trench digging, and make you less dependent on hand labor.

A Sullivan Rock Drill operated by a portable compressor, will cut trenches quickly through ledge. These drills are available in numerous models, suited to every rock drilling job.

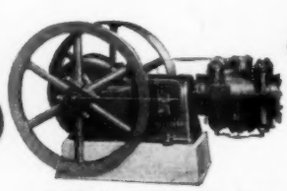
Where pipe lines are to be laid or repaired under pavement, Sullivan Concrete Breakers and Clay Spaders will triple the speed of hand labor. Spaders are particularly useful for narrow trenches, and for digging narrow trenches, and for digging under street intersections.

Back up an outfit of these tools, with a Sullivan Vibrationless Portable Air Compressor—and you will get your pipe lines in, quickly, when you want them.

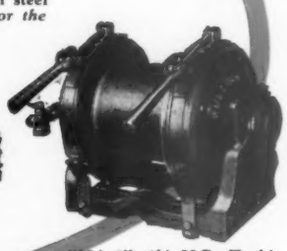
Vibrationless Compressors can be had in 66, 110, 160, 220, or 310 cu. ft. sizes, on steel wheels, trailer trucks, or skids. *Send for the picture book, "Speed Up With Air."*



Sullivan "WK-312," 110-ft. Vibrationless Portable Compressor on steel wheels. *(Booklet No. 83-F)*



"WG-6" compressor for repressuring.



"HA-3" 6½-H.P. Turbinair Portable Hoist. *(Bulletin 76-F)*

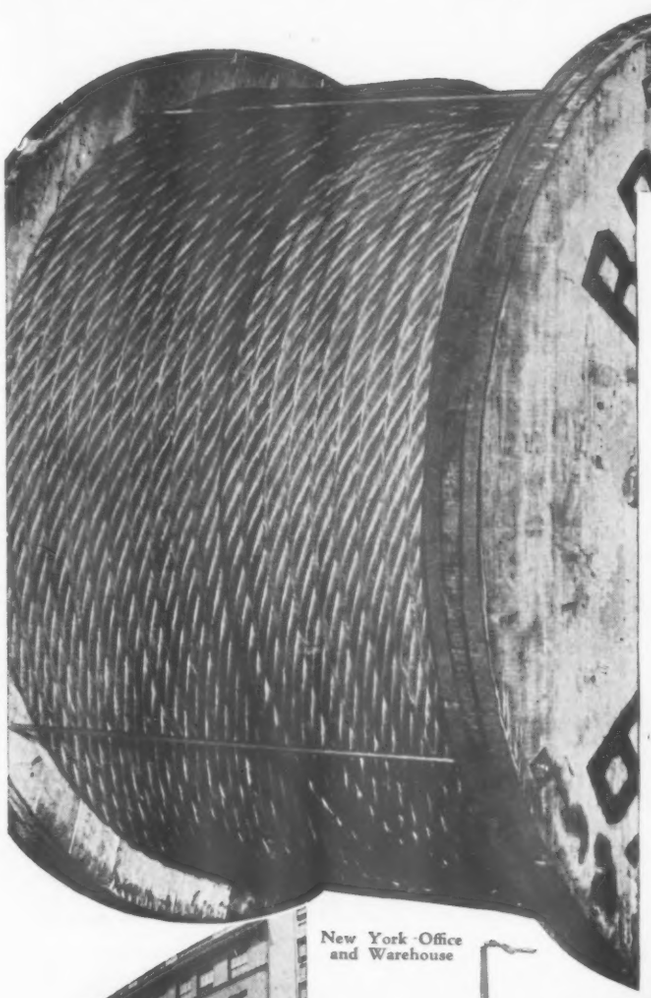
SULLIVAN

Sullivan Machinery Company
713 WRIGLEY BLDG., CHICAGO, U. S. A.

New York, London, Buenos Aires, Paris, Moscow, Brussels, Johannesburg, Mexico, Sydney, Calcutta.

Lima, Bogota, Tokyo, Garber, Tulsa, Dallas, Oklahoma City San Francisco.

Agents for Diamond Core Drills for Oklahoma and Kansas: George E. Failing, Garber, Wichita



IT'S A MIGHTY BIG "OUTFIT"

which provides the petroleum industry all over the world with that vitally important part of its equipment—dependable wire line.

Two great productive factories in St. Louis and Seattle and commodious warehouses in New York, Houston and Portland, keep supply houses everywhere well stocked with B & B Cable Tool Drilling Lines, Sand Lines and Pumping Lines, and the famous Yellow Strand Rotary Lines, laid up to suit conditions in each field. You get what you want *when you want it.*

Broderick & Bascom began making wire rope in 1876, were pioneers in designing special drilling cables—pliable, easy running lines that spell speed and economy in the cable tool field; and invincible Yellow Strand Rotary Lines, supremely elastic, non-crushing, and of uniform strength.

All B & B Lines are made of wire drawn to our own specifications and tested four ways before being made into rope. Machinery of exclusive design. Workmen of ripe experience. Result: Good, uniform, dependable lines.

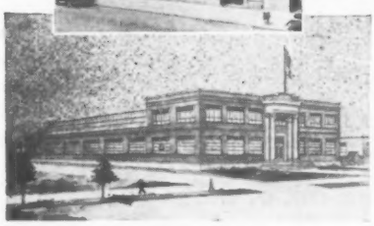
If you don't know name of nearest B & B Distributor, ask us. Write for catalog No. 40

BRODERICK & BASCOM ROPE COMPANY
St. Louis

Factories: St. Louis and Seattle
Warehouses: New York, Portland, Ore., Houston, Tex.

New York Office and Warehouse

St. Louis Factory



New St. Louis Office

Portland, Oregon, Warehouse

Seattle Factory

BRODERICK & BASCOM DRILLING LINES

NR695

THE LARGEST LIGHT OIL WELL IN THE WORLD COMPLETELY

Kerotest Equipped

•

Exclusive
California
Representative

OILWELL
SUPPLY COMPANY

•

KEROTEST

» Thomas Fuzzel No. 1 Indian Territory Illuminating Oil Company, Oklahoma City. Actual 24 hour oil production 44,000 barrels and 60,000,000 cu. ft. gas.

» KEROTEST Products handled this job perfectly.

» Every KEROTEST Product is given a more severe test in the factory before shipment than it can normally receive in the field. This test takes the guesswork out of drilling valve, flow line valve and Christmas Tree fitting purchasing—making it possible for you to buy and specify KEROTEST with the absolute assurance that it will meet any emergency.

» You too can play safe by capping your next well with KEROTEST.

KEROTEST MANUFACTURING COMPANY

« « PITTSBURGH, PENNA

Right thru the year-

And For Year After Year

You'll find that Alten quality products will continue to give you perfect satisfaction at all times and under all kinds of conditions. We know this because for forty years now we have been watching our products in operation in all of the major oil fields of the world.

Today there are over a hundred different items in the Alten line . . . all high-grade, long-lasting, smooth-operating products to help you in the production of oil on an economical basis. Write us for a complete listing of these products or full description of any in which you are interested.

ALTEN'S

Foundry & Machine Works

Established 1889 - - - - - - LANCASTER, OHIO

ASK FOR ALTEN PRODUCTS AT YOUR SUPPLY HOUSE

THE LARGEST LIGHT OIL WELL IN THE WORLD COMPLETELY

Kerotest Equipped

Exclusive California Representative

OILWELL SUPPLY COMPANY

KEROTEST

Thomas Fuzzel No. 1 Indian Territory Illuminating Oil Company, Oklahoma City. Actual 24 hour oil production 44,000 barrels and 60,000,000 cu. ft. gas.

KEROTEST Products handled this job perfectly.

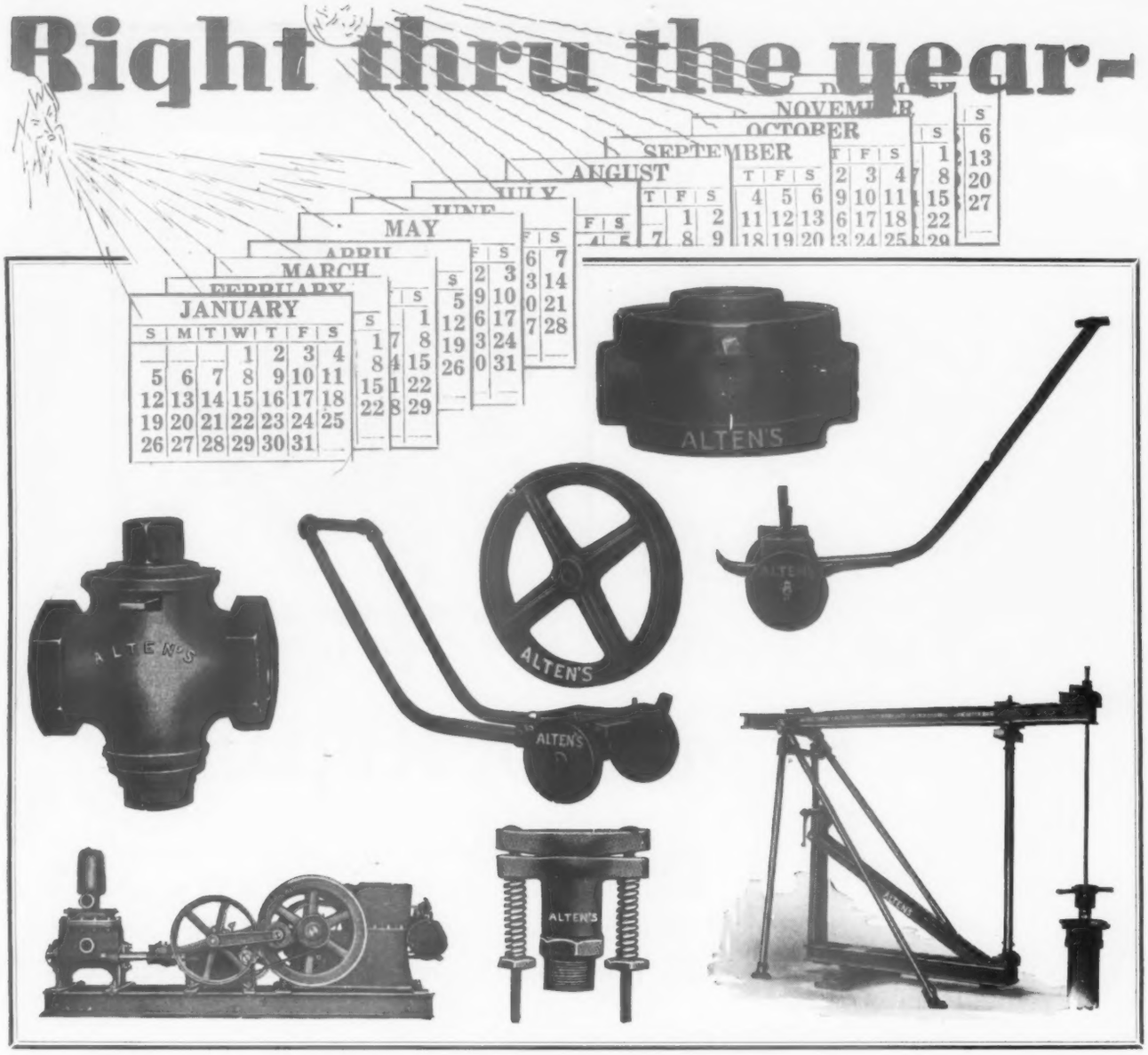
Every KEROTEST Product is given a more severe test in the factory before shipment than it can normally receive in the field. This test takes the guesswork out of drilling valve, flow line valve and Christmas Tree fitting purchasing—making it possible for you to buy and specify KEROTEST with the absolute assurance that it will meet any emergency.

You too can play safe by capping your next well with KEROTEST.

KEROTEST MANUFACTURING COMPANY

« « PITTSBURGH, PENNA

Right thru the year-



And For Year After Year

You'll find that Alten quality products will continue to give you perfect satisfaction at all times and under all kinds of conditions. We know this because for forty years now we have been watching our products in operation in all of the major oil fields of the world.

Today there are over a hundred different items in the Alten line . . . all high-grade, long-lasting, smooth-operating products to help you in the production of oil on an economical basis. Write us for a complete listing of these products or full description of any in which you are interested.

ALTEN'S

Foundry & Machine Works

Established 1889 - - - - - - LANCASTER, OHIO

ASK FOR ALTEN PRODUCTS AT YOUR SUPPLY HOUSE

Must you have special tools for

Regulator Repairs?

A VISE, a wrench, a screwdriver—essential equipment of even an apprentice's workbench—are all you need to take apart and reassemble the Oxweld Stem Type Oxygen or Acetylene Regulator.

Reliable
Economical
Long Lived

Typically Oxweld

These Oxweld Regulators are the last word in regulator design. They are simple—few working parts. They are rugged—no delicate mechanism to get out of order. They are dependable for any volume of gas under almost any atmospheric condition.

OXWELD

WELDING AND CUTTING APPARATUS AND SUPPLIES

OXWELD ACETYLENE COMPANY

Unit of Union Carbide and Carbon Corporation

UCC

NEW YORK Carbide and Carbon Bldg.
CHICAGO Carbide and Carbon Bldg.
SAN FRANCISCO: Adam Grant Building
IN CANADA: Dominion Oxygen Co., Ltd., Toronto
Stocks in 38 Cities

TITUSVILLE OIL COUNTRY MACHINERY
BUILT WITH RESERVE RUGGEDNESS

The International Supply Co.

of Tulsa, Okla.,

has been appointed

Exclusive Distributors

of TICO and ACME steam and gas engines, slush pumps, powers, rotaries and drawworks, for the states of Oklahoma, Kansas and Northwest Texas. They will carry our units in stock at their various stores and are prepared to completely service all machinery now in operation. We ask that you kindly let them have any inquiries you may have for these various products.

The Titusville Iron Works Company

Division of Struthers Wells-Titusville Corp'n,
Titusville, Pa.

TITUSVILLE OIL COUNTRY MACHINERY
BUILT WITH RESERVE RUGGEDNESS

SERVING WEST TEXAS

OVER 2000 MILES OF "HIGH LINES" BRING YOU ELECTRIC POWER (70000 HORSE POWER STRONG) FOR EVERY OIL FIELD TASK.

Turbine Room at Abilene - -

One of the three major generating stations which send abundant power throughout 45 counties in West Texas.

CREWS OF EXPERT LINEMEN stationed at strategic points are constantly inspecting the "high lines" of this company—so that oil operators who depend upon ELECTRICITY for their power, can enjoy perpetual service.

In all kinds of weather (regardless of the condition of oil field roads) operators whose "fuel" comes "by wire" are ready to go or stop on a moment's notice—with minimum fire hazard—with power costs which are steadily growing cheaper, NEVER higher.

Consult Our Engineers, and Learn ALL the Advantages of Using Electric Power

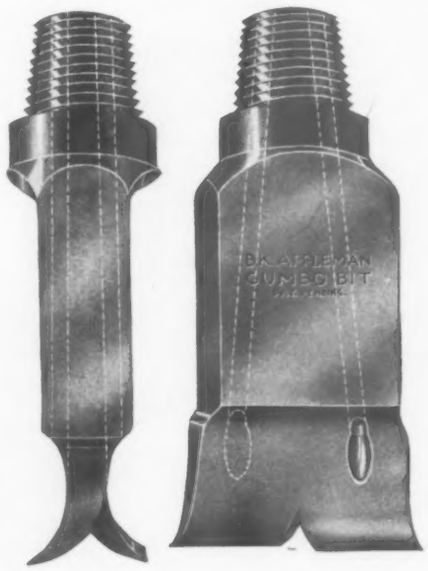
WEST TEXAS UTILITIES COMPANY

"In the Land of Opportunity"

GENERAL OFFICES ABILENE, TEXAS

SPEED Makes the Appleman Bit

a time saver and a money saver



Many of the most progressive and efficient oil companies and operators have found that the APPLEMAN GUMBO BIT is a VERY IMPORTANT ECONOMIC FACTOR IN THE OIL INDUSTRY. This bit, because of its design cuts drilling costs to a minimum. Its cutting edges are designed to give great speed thus further cutting down expense by saving time.

Self-Sharpening

The blades are formed concavely favoring sharp cutting edges for both bottom and side of hole. Attained by hard facing, permitting wear on back to retain cutting edges. Hence the well known feature of the Appleman Gumbo Bit—SELF-SHARPENING.

No Choking Up

Straight water courses lead direct to cutting edges. This assures maximum cooling effect. Cuttings are rapidly broken up and washed away in solution. This means NO CHOKING UP.

Ask the Man Who Uses Them

Users of the Appleman Gumbo Bit—

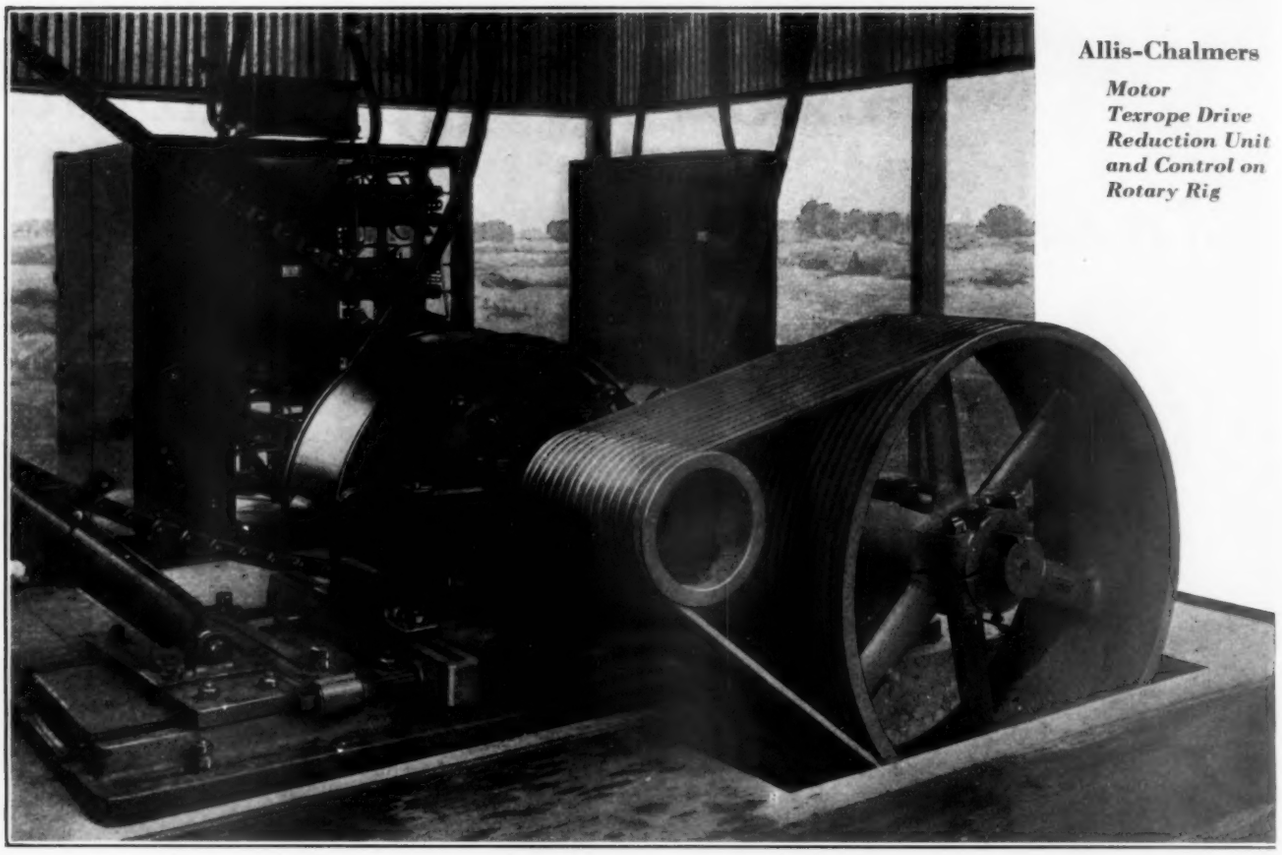
Gulf Production Company	Houston, Texas
Humble Oil & Refining Company	Houston, Texas
Shell Petroleum Corporation	St. Louis, Mo.
Sun Oil Company	Beaumont, Texas
Texas Company	Houston, Texas
Sinclair Oil & Gas Company	Houston, Texas
D. B. McDaniel Drilling Company	Houston, Texas
Marrs McLean	Beaumont, Texas
Rexal Petroleum Company	Houston, Texas
Unice Oil Corporation	Houston, Texas
Miller Drilling Company	Fort Worth, Texas
Riner Oil Company	Beaumont, Texas
Carter & Fultz	Houston, Texas
J. V. Redick	Tyler, Texas
Deep Test Oil Company	Beaumont, Texas
Smith & Hayslip	Houston, Texas
R. W. Townley	Houston, Texas
Mills Bennett Production Company	Houston, Texas
Geo. H. Echols	Mirando City, Texas
Hamill Drilling Company	Houston, Texas
Navarro Oil Company	Houston, Texas
Rycade Oil Company	Houston, Texas
Wolf & Laughlin	Houston, Texas
Albert Plummer	Houston, Texas
Bud Coyle	Houston, Texas
Boiling Dome Oil Company	Houston, Texas
H. R. Cullen	Houston, Texas
Cullen & West Production Company	Houston, Texas
Texas Southern Petroleum Company	Rockland, Texas
Vinton Petroleum Company	Ged, La.
Calcasieu Oil Company	Lake Charles, La.
L. Seiss Oil Syndicate	Lake Charles, La.
Moon Oil Company	Vinton, La.
Rex Petroleum Company	Vinton, La.
Harvey & Rush	Houston, Texas
Cranfill & Reynolds	Dallas, Texas
Geo. Bradley	Luling, Texas
Progressive Oil Company	Sulphur, La.
Port City Oil Company	Lake Charles, La.
Joe Davis	Beaumont, Texas
J. G. Sutton	Vinton, La.
Rayborn & Long	Luling, Texas
Baine & Anderson	Houston, Texas
Harrison Oil Company	Houston, Texas
C. A. Tucker	Dallas, Texas
Fort Bend Oil Company	Houston, Texas
Edgerly Petroleum	Vinton, La.
United North & South D. Corp.	Luling, Texas
Talbot & Markle	Houston, Texas

Appleman Gumbo Bits can be supplied by the following firms:

Speed & Service Iron Works	Houston, Texas
Continental Supply Company, Houston, Texas; Shreveport, La.; Luling, Texas.	
Oil Well Supply Company, Houston, Texas; Luling, Texas; Beaumont, Texas.	
Beaumont Iron Works	Beaumont, Texas
Mission Sales Company	Houston, Texas
T. T. Word Supply Company	Houston, Texas
Ged Iron Works	Ged, La.
Murray Brooks Hardware Company	Lake Charles, La.
Wilson Supply Company	Houston, Texas
Frick-Reid Supply Corporation	Luling, Texas
T. & L. Tool Company	Beaumont, Texas
Spindletop Machine Works	Beaumont, Texas
R. F. Cowan	Refugio, Texas
Trahan & Williams	Luling, Texas
Sour Lake M. & S. Company	Luling, Texas
T. T. Word Supply Company	Houston, Texas
Gulf Coast Iron Works	Barbers Hill, Texas

B.K. APPLEMAN

BEAUMONT, TEXAS

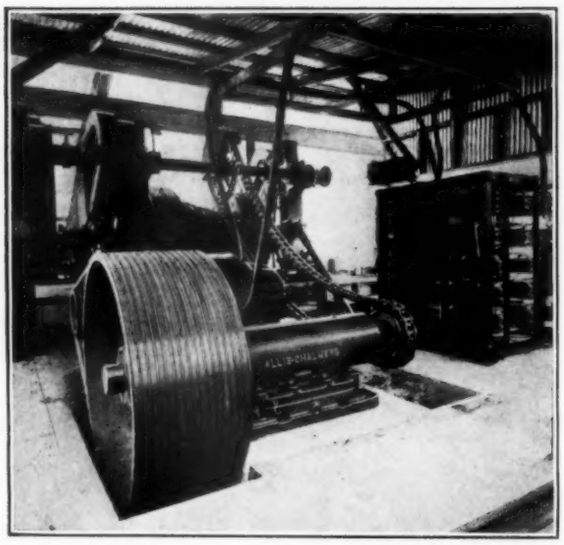


Allis-Chalmers

Motor Texrope Drive Reduction Unit and Control on Rotary Rig

An improved power unit

for rotary drilling



THIS new type of hookup for the power end of rotary drilling rigs utilizes several recent developments that not only make a simpler unit possible but also make it far more trouble proof and easier to operate. This development is the result of months of research into the need for a hookup that would eliminate the complicated system of wiring and control generally in use.

The motor used with this rig is the new and peppy Allis-Chalmers drilling motor. It is of the wound rotor high-torque type and is protected with splash proof covers. The drive is through a standard Allis-Chalmers Texrope single reduction unit. The control is of the full magnetic type with time delay acceleration.

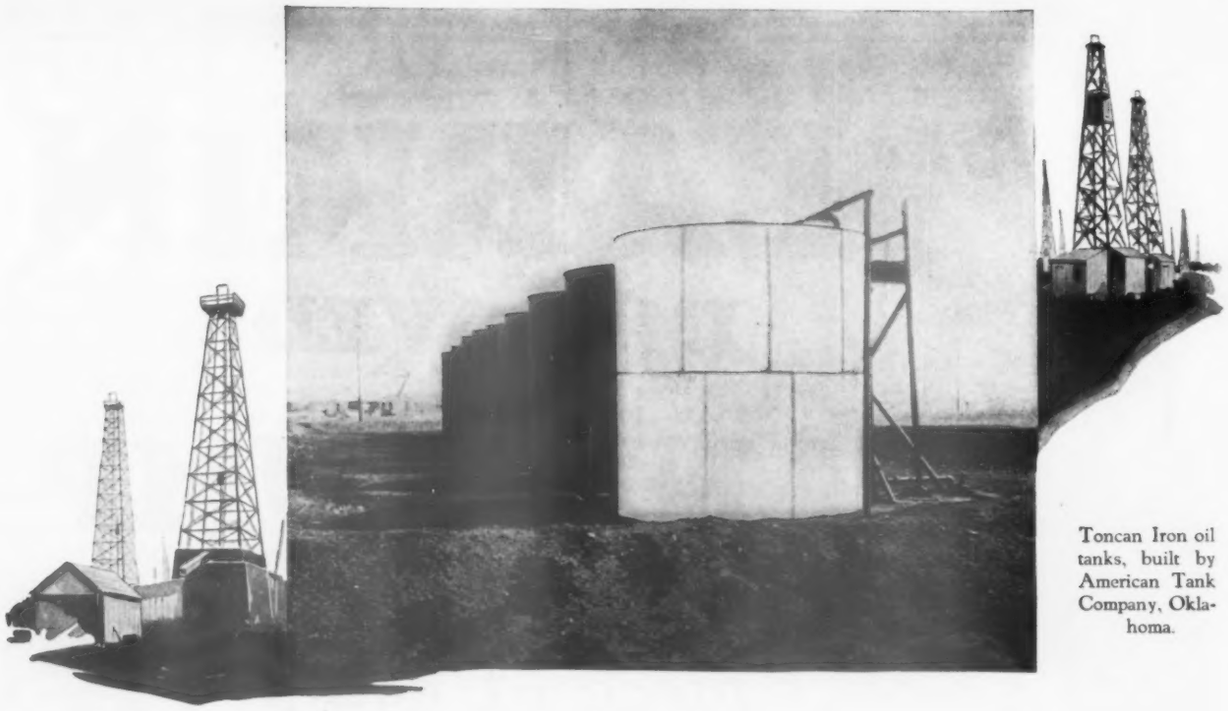
Attention is called to the metal cabinet at the right of the control unit. This contains a fully protected instrument panel, instrument transformers, and the disconnect switch, connected through solid busses. This eliminates all of the complicated and troublesome wiring generally used in connecting the instruments. When hooking up a new rig only a few simple connections are necessary.

Three conductor cable, the outside of which is solid rubber vulcanized, is used in wiring this rig. This type of cable is weather proof and is easily handled.

A-C oil field specialists, appreciating the problems encountered in drilling wells and pumping oil, are at your service.

ALLIS-CHALMERS

Allis-Chalmers Manufacturing Company, Milwaukee



Toncan Iron oil tanks, built by American Tank Company, Oklahoma.

Build For Permanence
Specify corrosion-resisting Toncan Iron

ALLOY additions made our automotive steels stronger, tougher, safer. So does the alloy addition in Toncan make this iron more corrosive-resisting and enduring.

Toncan is a highly-refined iron with practically all the corrosion-promoting impurities removed. Even purifying the iron alone adds years to its life.

But Toncan provides even greater protection, greater endurance. More years of service are added by alloying this highly-refined iron with copper and molybdenum.

The result is an alloy iron possessing more resistance to the vicious attacks of rust and corrosion than any other commercial sheet iron.

When you build, build for permanence — specify enduring Toncan.

REG. U. S. PAT. OFF.
TONCAN
COPPER
Mo-lyb-den-um
IRON

CENTRAL ALLOY STEEL CORPORATION
MASSILLON, OHIO

World's Largest and Most Highly Specialized Alloy Steel Producers

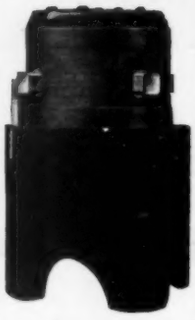
Makers of Agathon Alloy Steels

Cleveland Detroit Chicago New York St. Louis
Syracuse Philadelphia Los Angeles Cincinnati
San Francisco Seattle

Export Office: New York Central Building, New York, N. Y.

TONCAN COPPER MO-LYB-DEN-UM IRON

The LARKIN IMPROVED SAND PUMP



REGULAR BOTTOMS

In the Larkin Regular Bottom, the legs are short allowing the pump to rest as near the bottom of the hole as possible and still obtain the necessary suction to remove the greatest amount of sand and sediment quickly.

is the best known piece of equipment being used—

1—to increase oil production by cleaning sand and sediment from the hole.

2—to take sand samples for testing purposes.

With this pump and both of its bottoms, the driller has the best equipment there is for such work.

BIT BOTTOMS

This bottom is used for drilling and breaking the sand loose. Its chisel shaped design is unique, prevents sticking, and allows successful operation in tightly packed sands.

THE Larkin Improved Sand Pump will clean out more wells, for more years, than any other sand pump made. Fortify yourself against future trouble and loss by ordering one today—and be sure to include both REGULAR and BIT BOTTOMS.

LARKIN & CO.

BUTLER, PENNA.

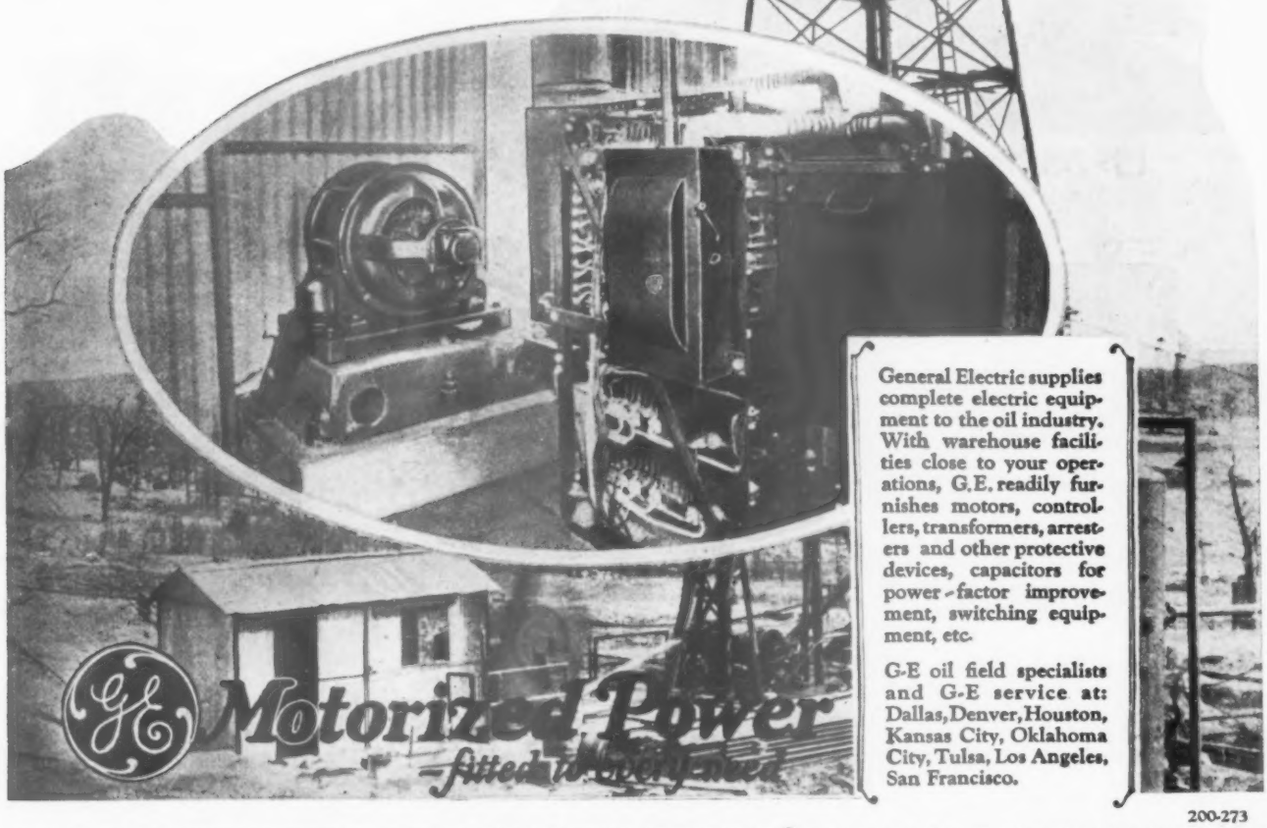
After you strike pay sand *then what?*

AFTER you sink the drill into the pay sand, then the big job is to get the crude out economically and efficiently.

That's just the job the G-E Type MTO two-speed pumping motor was made to do.

It completely fills all the power needs of a producer—pumping, pulling, bailing, cleaning, and even pulling casing and redrilling when necessary. And it does each job cheaply and without loss of time.

When a motor performs like that—and reliably, too—it is easy to understand why many operators install the Type MTO when they hit pay sand. That's why 6000 units, totaling 250,000 horsepower, are in use to-day.



General Electric supplies complete electric equipment to the oil industry. With warehouse facilities close to your operations, G.E. readily furnishes motors, controllers, transformers, arresters and other protective devices, capacitors for power-factor improvement, switching equipment, etc.

G-E oil field specialists and G-E service at: Dallas, Denver, Houston, Kansas City, Oklahoma City, Tulsa, Los Angeles, San Francisco.

200-273

JOIN US IN THE GENERAL ELECTRIC HOUR, BROADCAST EVERY SATURDAY AT 9 P.M., E.S.T. ON A NATION-WIDE N.B.C. NETWORK

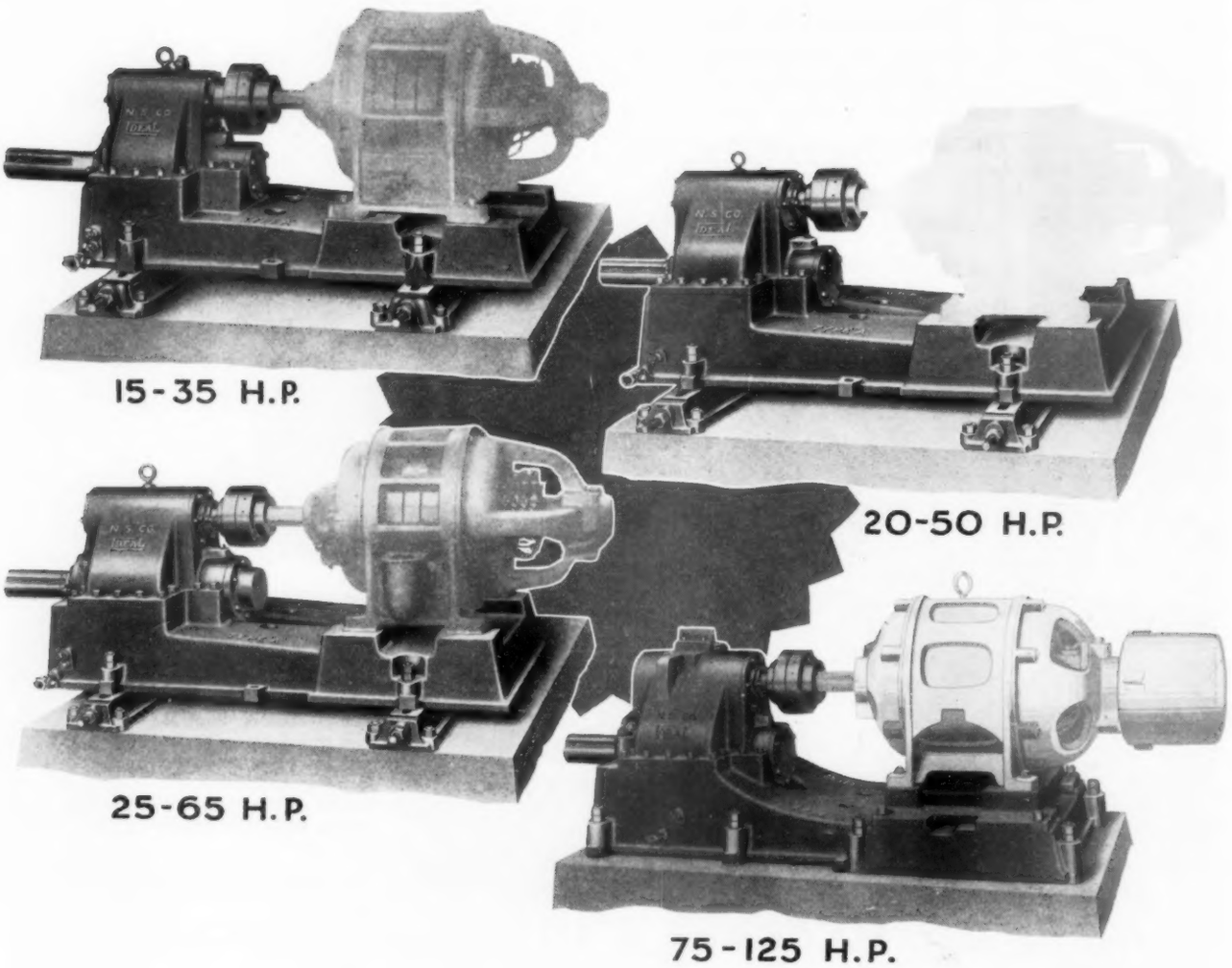
GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES

IDEAL

TYPE A

ROLLER BEARING REDUCTION GEARS



THE
NATIONAL SUPPLY
COMPANIES

A Gulf Publishing Company Publication

The OIL WEEKLY

Member Audit Bureau of Circulations

JANUARY 31, 1930

VOLUME 56, No. 7

Edited Weekly at Houston, Texas

SPENCER W. ROBINSON, EDITOR

TABLE OF CONTENTS

Special Features

Special Index to Statistical Section on Page 50

California Shipments to East Coast Probably Will Increase in 1930 43
By W. E. Green

Will It Be Barrels or Dollars? 45
An Editorial

Texas Committee Agrees on Drastic Production Cut 46

Aluminum Foil Coastings for the Oil Industry 51
By Stanley Gill, Walter F. Rogers and Stanton U. McGary

California Gas Waste Legislation Advanced During Last Year 63

Leigh Starts Second Leg of World Oil Survey 66

Iraq Directors to Select Pipe Line Route 179

Regular Departments

Advertiser's Index 258

Markets-Production-Crude Prices 181

United States Production Estimates 185

Crude Oil Price Quotations 186

Completions for Past Week in All U. S. Fields 222

Permits Granted for New Wells 226

Wildcat Drilling Reports from All Important Areas 230

News from California Fields 207

North and West Texas Field Notes 194

Gulf Coast Field Development Notes 199

Oklahoma-Kansas Field Notes 191

Personal Mention—Men You Know 190

Louisiana-Arkansas Development Notes 203

New Equipment, Catalogs, Bulletins, Books 253

Squeaks from the Bull Wheel 256

Copyright, 1930

Published Weekly

by

GULF PUBLISHING COMPANY

OFFICE OF PUBLICATION

3301 Buffalo Drive, Houston, Texas

R. L. DUDLEY, *President*

A. L. BURNS, *Gen'l Manager*

SPENCER W. ROBINSON, *Editorial Director*

J. KENT RIDLEY, *Managing Editor*

NEW YORK: Room 613, 250 Park Avenue Dick Swinsky, Manager.

PITTSBURGH: 703 Park Bldg., W. W. Pigue, Manager.

CHICAGO: 624 S. Michigan Ave., O. R. Waller, Manager.

LOS ANGELES: 416-417 Haas Bldg., W. E. Green, Manager.

TULSA: 913-916 Hunt Bldg., J. F. Carter, Jr., Manager.

FORT WORTH: 203 W. T. Waggoner Bldg., H. H. King, Manager.

Issued Friday of each week. Single copies 10 cents. Subscription price: Domestic $1.00 a year, Foreign $1.00 a year. Subscription restricted to those engaged in the producing and pipe line branches of the oil business or the manufacture and distribution of oil field supplies. Advertising rates on application.

for deep well drilling

The Oilwell 27″ All Steel Rotary (non-make-and-break) embodies every desirable feature as to strength, safety and simplicity of design.

It is built for heavy duty, easily handling 6″ drill pipe in the deepest territories.

Convenience of operation, long wearing quality and absolute reliability have been built into this rotary—the most complete unit of its type on the market.

IT'S FROM "OILWELL"

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

FEB -3 1930

Volume 56, No. 7 *January 31, 1930*

The OIL WEEKLY

A GULF PUBLISHING COMPANY PUBLICATION

California Gasoline Shipments *To East Coast* Probably Will Increase in 1930

By W. E. GREEN

LOS ANGELES.—There is no chance of California shipping less gasoline during 1930 to the East Coast than it did in 1929. In fact, actual commitments for the present year, represented in contracts already made, indicate an increase this year over last.

The explanation for this large movement, which has shown an increase each year for the past five years, except in 1926, is hard to put a finger on. In fact, there are several explanations.

In the first place, California is producing more gasoline than the West Coast can consume. The tieing together of several East Coast and West Coast companies is another reason. But the Panama Canal, making possible cheap transportation by water, is one of the main reasons. California light crude is being sold comparatively cheap.

There has been and will continue to be a big supply of natural gasoline, which is used for blending purposes and is also mixed with the crude for storage. Natural gasoline has been selling at 8 to 10 cents a gallon for the past three or four years, and will continue to sell around 10 cents or under for the next two years at least, due to the large volume available over a long period at Kettleman Hills and other flush fields.

Of the seven so-called major companies operating in California, six have actual contracts to sell gasoline for movement to East Coast points, or have plans for shipping to affiliated companies operating in the East. Associated Oil Company is owned by the Tide Water Associated Oil Company, and needs of the latter are cared for by the former from California.

Standard Oil Company of California shipped much gasoline last year to Sun Oil Company and will make further shipments this year, in addition to other sales it may make. Shell Oil Company is a large shipper, but to a small degree to the East Coast. General Petroleum Corporation is owned by Standard Oil Company of New York and ships much gasoline to the parent company. Union Oil Company sells much gasoline for export and has had a contract, renewed each year, with the Atlantic Refining Company. Richfield Oil Company has organized a subsidiary on the East Coast and will continue to ship gasoline to that area. The Texas Company of California is owned by The Texas Company of the East Coast and naturally will ship any gasoline to East Coast called for by the parent company. The Texas Company shipped at least four cargoes of natural gasoline to Port Arthur during 1929.

Most of the gasoline now moving to the East Coast is on contract and not as a result of spot sales. Recently a spot sale was made of gasoline moving from Los Angeles Harbor at a loaded price of 6 cents. Other cargoes (U. S. Motor) can be purchased at this harbor at the same price. Some gasoline is sold for movement to East Coast points at 8 to 8½ cents, c.i.f., meaning a delivered price. The present ruling tanker rate, California to East Coast, for clean boats, is about 2¼ cents a gallon, which includes canal tolls and insurance.

It is fully realized in California that the large movement of California gasoline to the East Coast is a disturbing fac-

CALIFORNIA REFINERY OPERATIONS AND SHIPMENTS IN BARRELS

	—Daily Average— Crude Throughput	Gasoline Production	Monthly Tanker Movement to East Coast *Daily aver. Nat. Gaso. used for blending	
1928—				
January	526,073	166,202	1,072,256	*29,935
February	552,300	168,925	909,692	25,634
March	564,621	164,119	1,149,468	19,760
April	570,508	163,182	1,182,366	23,570
May	555,006	166,422	1,386,386	25,941
June	589,968	180,380	1,589,184	26,331
July	607,121	182,170	1,744,783	26,264
August	596,855	189,504	1,699,778	31,954
September	607,402	183,620	1,268,887	27,756
October	586,073	189,935	1,601,547	33,243
November	594,152	193,635	1,287,908	32,964
December	621,740	212,974	1,887,000	32,740
Total			16,779,155	
1929—				
January	625,400	221,951	1,823,189	34,427
February	613,858	209,498	1,735,299	32,918
March	636,937	234,350	1,550,200	41,852
April	649,623	240,407	2,110,144	40,256
May	648,055	231,833	1,498,196	37,316
June	690,638	242,978	1,597,970	41,575
July	736,619	281,086	2,346,079	47,207
August	724,432	275,943	2,367,282	44,060
September	706,110	262,297	2,050,147	46,473
October	739,221	276,935	2,299,222	47,901
November	654,895	256,272	2,124,609	41,140
December	639,653	239,273	1,971,167	41,089
Total			23,473,504	

The above table has been worked into a curve, accompanying this article, making it easier to visualize the trend for the two years.

tor, but the company executives feel that they have the gasoline for sale, and the buyer who is willing to pay the price can get the gasoline. They realize the situation but apparently there is nothing they can do about it. They can not or will not shut down their refineries. They are adverse to the building of a large amount of new steel storage. It is true that California has around 40,000,000 barrels of empty steel and reservoir storage in the state, but this empty storage is not divided equally among all of the companies. California refiners have also found it to be the better practice to run the light crude through the refineries, storing the lighter products in steel storage, with fuel oils going into reservoirs. This has been the practice and is likely to continue.

It has been generally reported that the major companies of California are to reach a decision to reduce their shipments to the East Coast. They will do so, if they find a market elsewhere for the gasoline that might otherwise go to East Coast, and again, if the East Coast affiliated companies can take care of their gasoline requirements at a price that the California product would cost them. There is now a movement on foot to reduce refinery runs among the major companies. But such a movement is entirely contingent on the general curtailment movement. If crude oil production in California is further curtailed, thus reducing the daily production to a point below refinery requirements, then plant runs will be reduced, but not before. *There is little chance to greatly reduced production for the next several months, even by a drastic price reduction. So there is little chance for this plan to materialize.*

Gasoline consumption on the West Coast has shown a most healthy increase, but the production of crude oil has been even greater.

The daily average production of crude in California by years, starting with 1918, follows:

	Barrels
1918	267,200
1919	277,200
1920	282,500
1921	308,500
1922	379,400
1923	720,200
1924	625,500
1925	630,541
1926	614,019
1927	632,196
1928	633,832
1929	800,101

California Gasoline Shipments

Shipments of gasoline from California during the past several years have shown a constant increase, being moved in tankers to all parts of the world, but mostly through the Panama Canal. The record for the past seven years in barrels follows:

Year	Total Shipments	To Atlantic Domestic
1923	6,228,834	2,666,512
1924	8,901,524	2,904,532
1925	16,557,088	9,807,429
1926	18,378,447	8,452,702
1927	23,506,722	11,675,025
1928	32,872,950	16,779,255
1929	*47,500,000	*23,473,504

*Estimated.

It will be noted that the big movement to points on the East Coast hit its stride in 1925, dropped back a little in 1926, but forged ahead again in 1927, with a big increase in 1928 and a still further increase in 1929. *There is a possibility, and a real one, that the gasoline movement to East Coast from California during* 1930 *will exceed* 25,000,000 *barrels.*

Gasoline Consumption

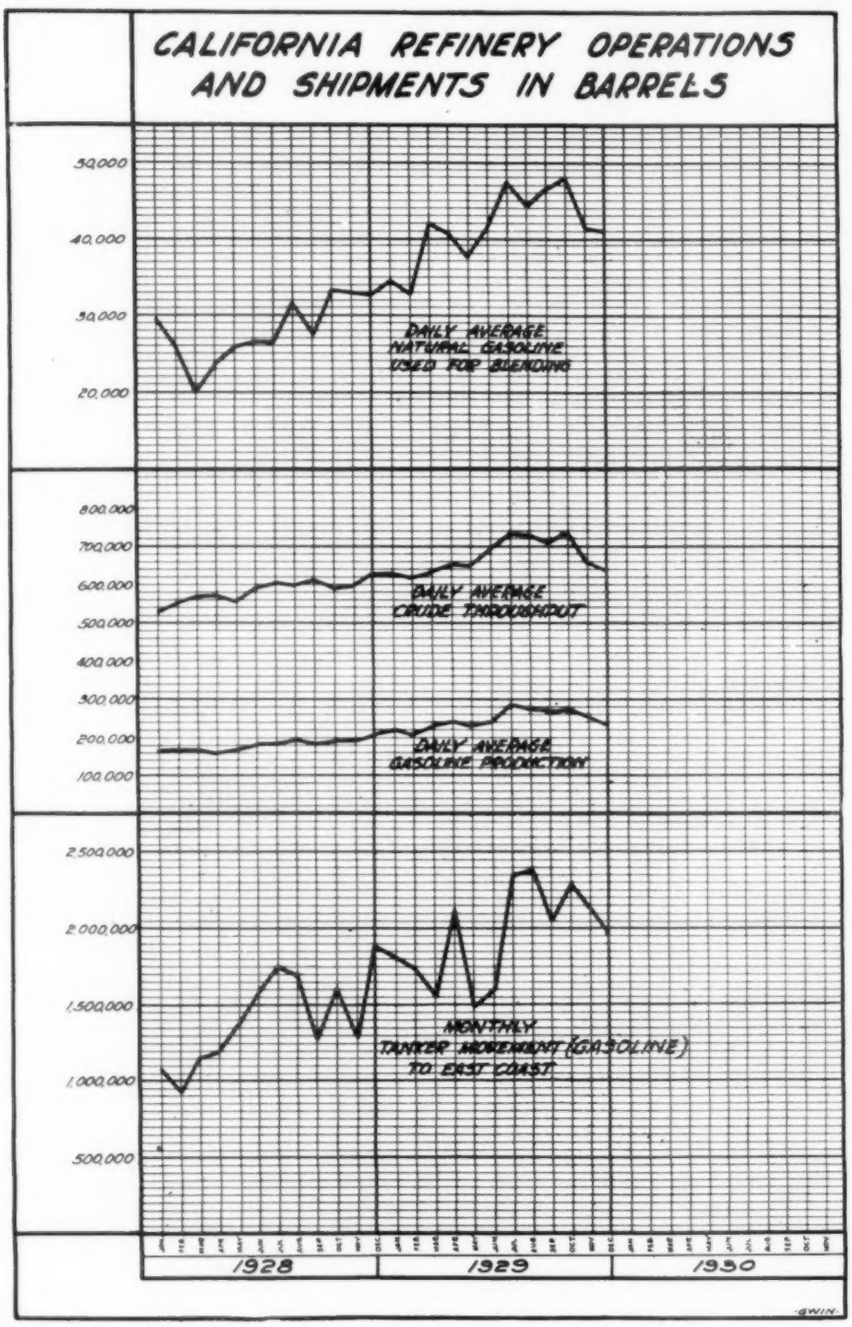
The indicated consumption of gasoline on the West Coast, which includes California, Washington, Oregon, Arizona and Nevada, during the several years has shown an increase of about 10 per cent each year, according to figures compiled by the San Francisco office of the Bureau of Mines.

According to figures for 1924 to 1928, inclusive, the total indicated consumption of gasolines (which includes engine distillate) for the year 1929, will be very close to 40,000,000 barrels, and if these figures are extended through 1930, the consumption should be very close to 44,000,000 barrels, although a few students of general conditions feel that the increased consumption in 1930 will not be quite up to the mark set in previous years.

Indicated consumption figures for the five states mentioned, follow by years:

1924	23,561,824
1925	26,506,750
1926	30,013,191
1927	33,474,229
1928	36,610,019
1929*	40,000,000
1930*	44,000,000

*Estimated.



Will It Be Barrels or Dollars?

Economics has always been of paramount importance to all business. Conditions which obtain in the petroleum industry make study of its economics particularly of importance at this time, which makes presentation of the facts revealed in this issue of The Oil Weekly essentially opportune. It is gratifying to the publishers that they are thus able to make this contribution to the industry at a time when a widespread study and understanding of conditions as they exist in the oil business are so necessary to its well being in the months to come.

Economics, it should be remembered, is as much a part of business as is engineering, and as a science it is as exact. Review of the months which have passed, during which the industry has accumulated a surplus which is the immediate cause for widespread concern, reveals that while proper attention to engineering has been given, economics has been disregarded. The picture repeatedly has been painted by the statistical departments which contribute information, but the marks on the wall have not been heeded. The fact that a buyers' market has been normal in the oil industry for several years indicates that the study of economics has been confined to the crude buying agencies, and only when the situation is revealed to the rank and file of producers in the form of price reductions, is any real thought given to the subject by the majority.

Too long has the industry thought in terms of barrels, with the idea that value will take care of itself; the time has now arrived when each individual producer must analyze the relation of barrels to cost and value, and in turn the relation of supply to value. With this must come realization of the fact that too great utilization of the advanced methods of production, which make lower recovery costs possible through efficiency, can be so overdone as to defeat its purpose unless discretion is used in the use of the power engineering methods have given.

Means for relieving the situation through control of output have been pointed out by leading minds in the industry. In their plans they have had the encouragement and counsel of the conservation departments of the federal and state governments. In instances it has been proven that it is possible for production in a given area to be limited to a volume determined by the operators of the wells. It is simply a matter of full cooperation of the producers. This cooperation should come when the owners of the wells fully realize the situation with which they are confronted, and knowledge of the facts revealed by a review of the present, projected into the future, which is admirably done by Mr. Struth in an article in this issue.

If every producer of crude oil could be induced to inform himself thoroughly of the economic situation, and further would understand that as his neighbor and his competitor prosper he will profit, a long step toward curing the present ills of the industry would have been taken.—J. K. R.

Texas Committee Agrees On Drastic Production Cut

Report to President Moore will be discussed at meeting in Fort Worth

THE report of the committee appointed by the president of the Texas Division of the Mid-Continent Oil & Gas Association, presented herewith, does justice to the deliberate consideration given the subject by minds that were actuated by a desire to improve a situation, rather than to give vent to accusations and bitterness.

The committee is looking the situation squarely in the face and in the concluding paragraphs of its report makes recommendations which should be followed out.

Operators of the Mid-Continent should put into action the suggestions contained and that without delay.

When the committee says that the situation would be far worse were it not for curtailment work already accomplished, it is stating a simple truth. Unless something is done the worst has not yet happened.—THE EDITOR.

Dallas, Texas,
January 27, 1930.

Mr. Edward T. Moore, President,
Texas Division, Mid-Continent Oil & Gas Association, Dallas, Texas.

Dear Sir:

We, your committee, appointed at the meeting in Dallas, last Monday of the Directors of the Texas Division of the Mid-Continent Oil & Gas Association, for the purpose of investigating the causes of the recent changes in the prices of crude oil, and of making recommendations, report as follows:

Your committee went to Houston and held a conference last Friday with Mr. W. S. Farish, President, Humble Oil & Refining Company, and discussed in detail with him the present status of the oil industry and the reasons which actuated the Humble Company in its recent price changes. Mr. Farish was quite frank and fair in answering the questions asked him by the committee. He declared, however, that the Humble Company could not rescind its new price schedules under present production conditions and that it could make no promises as to the future. He expressed regret that the circumstances which forced the change were still operating and that they precluded the possibility of returning to the old price structure until controlling circumstances themselves had been changed and readjustment as between supply and demand had been made. Mr. Farish readily admitted that present conditions have forced oil below its intrinsic value as compared with other fuels.

Statistics Analyzed

Your committee, as thoroughly as its limited time permitted, has gone into all available statistics as to the present production, storage, and refining conditions of the oil industry. These include data from the reports of the Federal Bureau of Mines, the American Petroleum Institute, the various oil journals and other sources. It has developed that the data relied on by your committee is not substantially different from the data referred to by Mr. Farish. A careful consideration of the figures will do more to give a correct understanding of the whole situation than any other approach to the problem of which we are aware.

From a survey of the controlling data and figures it is the unanimous conclusion of this committee that there is still an actual over-production of both crude oil and refined products, and that there is a real necessity for further and immediate curtailment of petroleum products. Progress in curtailment was made by Texas producers between the peak week for the year 1929 to the end of the year, and for this progress producers should be commended. The curtailment accomplished, however, was not sufficient. It is our belief that a constructive program must be initiated and that the operators themselves are the ones who must adjust their production to available demand. Such machinery as the law provides should be availed of, so that this vitally necessary further curtailment in production may be effected in the most expeditious manner possible.

Your committee believes that relief in the immediate situation must be had, if at all, through curtailment, instead of through tariff action. Your committee believes that the oil industry in the United States would not very greatly improve its present acute needs by an oil tariff, even could such a tariff be procured within a reasonable time. This country today is, and for some time has been, exporting far more crude oil and far more refined products than are being imported into this country. In other words, the balance of exports over imports is in our favor, not against us. In 1929 all of our imports of crude oil and refined products totaled 109,000,000 barrels, as against total exports of 162,000,000 barrels, an excess in favor of our exports over imports of 53,000,000 barrels. The excess in favor of exports over imports existed not only in crude oil, but also in refined products. Moreover, the inevitable delays which would be involved in seeking relief through tariff action to the prejudice of sane curtailment in production and refining would be avoided if the oil industry concentrates at this time upon conforming to the law of supply and demand by sharply curtailing production. Your committee recognizes, however, that there is diversity of opinion in the oil industry as to the value, presently and prospectively, of seeking and obtaining tariff action, and it has no desire to prevent study of the problem and further action by the Association. This committee believed the present situation so acute as to require it to concentrate upon curtailment recommendations.

Further figures bearing upon tariff

(Continued on page 218)

MEETING CALLED FOR FRIDAY

DALLAS, Texas.—A call for a general meeting of all oil and gas producers of the State of Texas, to be held at the Texas Hotel, Fort Worth, Texas, Friday morning, January 31 at 10 o'clock was issued Monday by Edward T. Moore, president of the Texas Division of the Mid-Continent Oil & Gas Association, following receipt by him of the report of the special committee appointed last Monday to investigate the causes of the recent crude oil price cuts and to recommend a course of action.

This committee recommended a sharp curtailment of production and urged that immediate steps be taken to this end. In giving the report to the press, Mr. Moore said he was doing so at this time in order that the producers of the state may know what the committee's report will be and afford them an opportunity to give some thought to the subject before the meeting next Friday at Fort Worth. Mr. Moore urged that all oil and gas producers study the report carefully and attend this meeting regardless of whether or not they are members of the association.

The report of the special committee was signed by Warner Clark, chairman; John F. O'Donohoe, Charles F. Roeser, J. S. Birdwell, Robert R. Penn, Edgar J. Marston, Frank Cullinan and T. B. Hoffer.

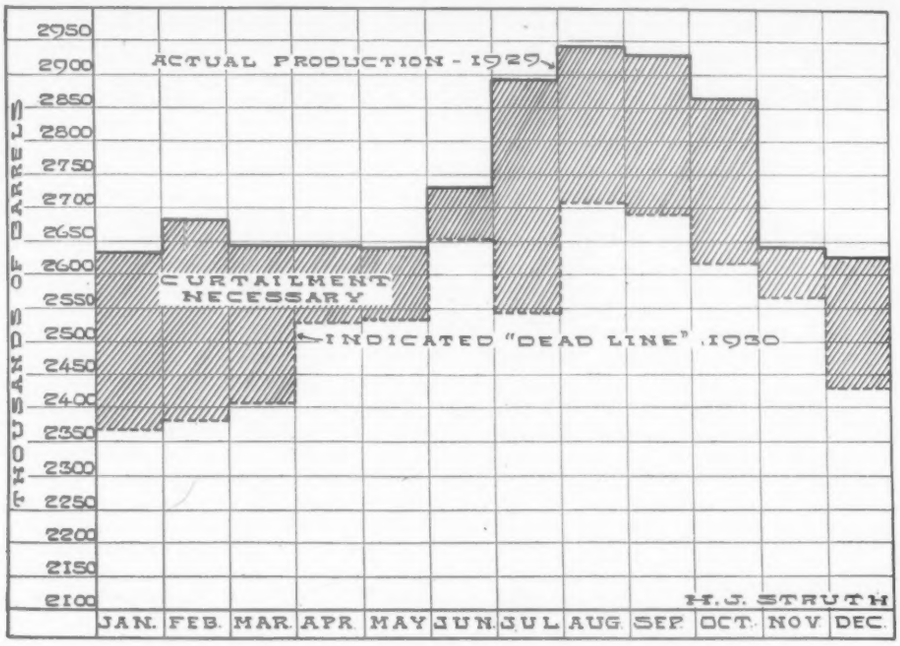


FIGURE 1

Daily Average Crude Production "Dead Line" for 1930 Compared with Actual Daily Average Produced in 1929

1930 Production Limits Prescribed *by* Demand

Projected "Dead Line" Offers Course That Would Insure Economic Stability and Profit

By H. J. STRUTH
Staff Economist, THE OIL WEEKLY
Houston, Texas

SOMETHING to "shoot at"—a "dead line"—is what the petroleum industry needs more than anything else, to serve as a definite and practical guide to economic stability. Year after year, the industry has admitted failure in solving the problem of over-production; determined to curtail; repeated the process, over and over again. Last year, the first real evidence of concerted effort to curtail over-production was manifested by a sharp drop in the daily average crude output. This effort, while most constructive, came too late in the year to accomplish the task of reducing the large excess supply of crude, whereas lack of such effort in the refining branch of the industry practically nullified the benefits that might otherwise have accrued. Such "hit and miss" policy prompts serious consideration of the establishment of a production "dead line" for both producers and refiners that offers a reasonably certain course of equilibrium, beyond which lurks the danger that must be avoided to insure economic stability and profit.

Any consideration of the probable demand for crude this year must necessarily contemplate the influence of greater efficiency in the recovery of gasoline from crude run at refineries, as well as the mounting influx of both crude oil and gasoline from South America. A careful survey of the potential crude requirements for 1930 reveals a decided need for strict curtailment, since it is apparent that even the prospect of a larger gasoline demand will require practically no increase over the actual demand for crude experienced last year. In fact, on the basis of a total demand in sight of 472 million barrels of gasoline, the refining industry cannot afford to process more than 990 million barrels of crude this year, and at least 100 million barrels of that amount will constitute foreign crude. Thus, while the total crude demand, including exports, will probably aggregate 1,025,000,000 barrels the net amount required from American producers will not exceed 925 million barrels, or a daily average for the year of 2,534,000 barrels.

Amount of Curtailment Required

The extent to which curtailment must be carried out this year is portrayed in Figure 1, which shows the projected production "dead line," on a daily average basis, for each of the 12 months of this year and, by comparison with the actual

daily average production during 1929, indicates the amount of curtailment necessary. Beginning with January, it is seen that production should not exceed 2,363,000 barrels daily, or 273,000 barrels per day less than was actually produced last January. Judging from the facts at hand, it is apparent that the industry has already begun 1930 with excessive production to the extent of nearly 300,000 barrels a day above normal requirements. This can only mean that the cumulative excess for the first month in the year must necessarily be included with future curtailment schedules, or become a serious handicap to regulatory efforts. Thus, each day that production exceeds the indicated normal, set up as the standard on the chart, involves greater difficulty in attaining the degree of stabilization that is so vitally necessary to make this a satisfactory year.

The top line of the shaded area on the chart represents the daily average production of 1929, while the lower, dotted, line prescribes the normal course of production that should be attained this year. The shaded area, or difference between the two curves, indicates how much production must be curtailed under last year's records to approximate the normal indicated demand. Obviously, every barrel of crude produced in excess of the prescribed "dead line" this year will be reflected in the already burdensome surplus stored supply. On the other hand, only by keeping the production curve below the "dead line" can the industry succeed in reducing its present unwieldy above-ground supply. As long as production remains above the "dead line" the industry cannot expect much improvement in the crude market.

Table 1, presents in detail the indicated demand for crude during each month of the present year, as well as the normal production required. The estimated demand is based upon a probable gasoline demand of 472 million barrels, of which only 396 million barrels represents the maximum production required from refineries this year. Expansion in cracking facilities contemplates an average yield of gasoline from crude of more than 40 per cent during 1930, indicating a normal crude throughput by refineries of 990 million barrels. The table also shows the daily average crude production required for each month, compared with actual production records of last year. In compiling this data, every influencing factor has been considered that, based upon the accuracy of forecasts last year and of former years, is believed to represent a most reliable index of demand expectancy for both gasoline and crude petroleum.

This data is further amplified in Figure 2, presenting a graphic view of what would constitute a completely normal situation as regards the production of both crude and refined oils. This chart shows the monthly crude demand for all purposes, the quantity expected to be received from foreign sources, necessary domestic crude production and normal refinery crude requirements. At a glance, the chart reveals not only how much crude should normally be consumed at refineries but also the proportions of foreign and domestic crude required. The area between normal crude production and total demand represents the amount expected to be supplied from foreign sources, while the area between the top of the bars, representing refinery crude runs, and total demand indicates the probable exports of crude, including its utilization as bunker fuel. The figures upon which this graphic guide to normalcy is based present an interesting study that will furnish an unusually comprehensive appreciation of the true situation, particularly when compared with actual results throughout the ensuing months of this year. Since this data was constructed without consideration of the influence of present stocks of crude, it is obvious that even further curtailment than that suggested would be necessary to effect a reduction in crude storage. On the other hand, the estimates are believed to be conservative so that any increases above the contemplated demand will necessarily result in storage withdrawals, provided that production schedules conform strictly with the limitations prescribed.

Officials of the American Petroleum Institute, proration officials, state organizations and individual operators, as well as refiners, should give careful study to the possibilities suggested by this data. Using the limitations prescribed herein for the United States as a basis, it is possible to allot a "dead line" of production for producers and refiners to apply to every major producing and refining area of the country, which, in turn, can be "broken down" to include the states and even individual fields. With such a guide, overproduction would quickly vanish and economic stability of both supply and markets would insure deserved financial returns to all concerned. An idea of the possibilities afforded by the use of the suggested data can be obtained from the following table showing how the production quota can be applied to the six leading crude producing states:

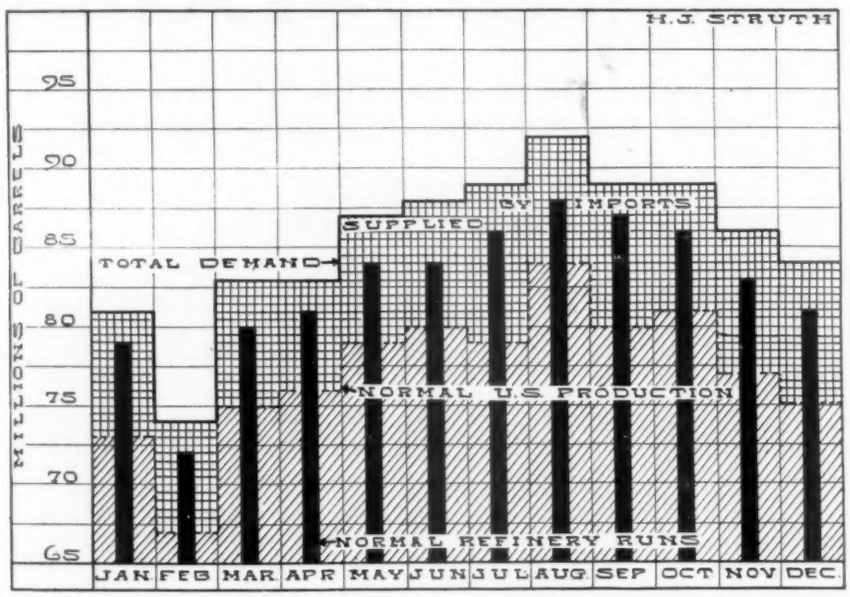


FIGURE 2

The Oil Industry's Guide to Normalcy for 1930. Shows Normal Anticipated Crude Requirements, Refinery Runs and Maximum Production Required From American Producers

NORMAL PRODUCTION QUOTAS FOR 1930
(Barrels)

State—	Total Production 1929	Normal Production 1930	Daily 1930	Average January 18 1930
Arkansas	25,121,000	22,913,000	62,775	57,500
California	291,971,000	266,312,000	729,615	695,300
Kansas	42,850,000	39,084,000	107,078	111,250
Louisiana	20,341,000	18,553,000	50,830	57,650
Oklahoma	253,672,000	231,379,000	633,909	694,050
Texas	299,028,000	272,759,000	747,278	833,700

From the foregoing it is apparent that Texas, Oklahoma, Louisiana and Kansas are still out of line, as indicated by actual daily averages for the week ending January 18. According to this, Texas is by far the chief over-producer of crude. However, if this data is "broken down" on a monthly basis, it will be found that all of the above states are producing considerably more crude than is normally required. Thus, while California shows up favorably, on the full year's daily average compared with the week of January 18, it will be found that the average for the month of January should be considerably less than the average indicated for the full year, revealing an excess at the present time. Further analysis could be made whereby the normal production of each state would be prorated over the flush producing areas, facilitating intelligent construction of field proration quotas.

The experiences of the past have proven conclusively that voluntary curtailment by operators in various pools will not completely solve the problem of over-production. It is apparent, therefore, that only by considering the problem from a national standpoint will it be possible to effectually reduce production to a normal level. In the final analysis, true conservation of the nation's petroleum resources will only become fully realized when operators in every producing area of the United States are furnished with a definite guide upon which to determine the extent of proration necessary to insure normal production rates.

Results of Proration

The results obtained through proration last year are gratifying, to be sure, but the fact remains that much more must be done in this direction during 1930 if the industry expects to emerge from the throes of over-production. The recent price reductions in Texas, as well as in Oklahoma and Kansas, are the danger signals that signify the need for more effective measures of control, and particularly emphasize the immediate need for curtailment in the manufacture of petroleum products. One mistake in last year's curtailment program, that should be avoided this year, was the prevailing conception that refinery runs furnished a guide to normal crude production. Subsequent events proved that this factor constituted an inflated barometer that eventually proved to be the direct cause of a lower crude market. More and more it is becoming apparent that the producing and refining branches of the industry are more or less dependent upon each other for the course of market values. When one or the other over-produces, the influence of such uneconomic practice is reflected in the price structure of both. It is obvious, therefore, that the path to normalcy lies between both branches of the industry and must be rigidly followed by both to insure a reasonable state of equilibrium. Thus, it follows that producers must gauge their production in conformity with the normal rate of crude runs to refinery stills, as prescribed by the indicated demand for gasoline.

That curtailment efforts must be continued throughout the present year is a foregone conclusion. That immediate attention be given to the necessity for curtailment of refinery crude runs to stills is of vital importance to both refiners and producers. The key to the solution of the over-production problem for both branches of the industry can be furnished through the establishment of a "dead line" for the production of crude and for the processing of crude at refineries. If producers and refiners will heed the call echoed by the facts presented here, the present year will perhaps mark the beginning of a new era in the petroleum industry that will make for greater stability and consequent prosperity. The need for something to "shoot at" is paramount—the target is furnished by the production "dead line"; to miss the mark again this year means profitless prosperity. It is up to the industry to hit the mark with a minimum waste of "ammunition."

TABLE 1
BASIS FOR NORMAL CRUDE PRODUCTION—1930
(Thousands of Barrels)

	Total Refinery Demand	Exports (Add)	Total Demand*	Imports (Deduct)	Net U. S. Production	Daily Average 1930	Daily Average 1929	Curtailment Necessary
January	78,702	2,269	80,971	7,715	73,256	2,363	2,636	273
February	71,918	2,287	74,205	7,589	66,616	2,379	2,685	306
March	80,333	2,822	83,155	8,594	74,561	2,405	2,647	242
April	80,582	2,398	82,980	7,112	75,868	2,529	2,647	118
May	84,268	2,749	87,017	8,506	78,511	2,533	2,640	113
June	84,289	3,468	87,757	8,230	79,527	2,651	2,763	112
July	85,673	3,117	88,790	9,901	78,889	2,545	2,889	344
August	88,252	3,468	91,720	7,715	84,005	2,710	2,941	231
September	86,707	2,763	89,470	8,980	80,490	2,683	2,933	250
October	85,746	3,719	89,465	8,419	81,046	2,614	2,865	251
November	82,595	3,119	85,714	8,682	77,032	2,568	2,643	75
December	80,935	2,821	83,756	8,557	75,199	2,426	2,626	200
Total	990,000	35,000	1,025,000	100,000	925,000	2,534	2,758	224
Daily Average	2,712	96	2,808	274	2,534	....	....	...

*Does not include crude consumed on leases—marketed production only.

Oklahoma Commission Approves New Order On Field Proration

Tulsa. — The Oklahoma Corporation Commission has approved the new proration order for crude oil production in the state. The order complies exactly with the terms drawn up by the operators at several recent conferences held in Tulsa.

It was brought out at the hearing that the potential production of Oklahoma is 900,000 barrels per day at this time and that in February and March it will probably reach 1,000,000 barrels per day.

The demand for Oklahoma crude oil until March 30 is expected to be 600,000 barrels per day and that heavy storage of oil would be necessary if production was not prorated.

C. C. Childers, one of the commissioners, stated that he did not want Oklahoma to be made the goat in production curtailment and he hoped oil men would use their efforts to get other states to curtail production as much as Oklahoma has.

The order provides that the Oklahoma City pool to be curtailed 75 per cent of its potential production from January 21 to March 31. The four classes of wells there will be permitted to produce three days and thereafter shut in for nine days of each 12-day period. The umpire was also granted authority to raise or lower the amount of proration according to the abilities of the pipe line companies to handle the output.

Beginning January 16 and extending through February 28 all wells in the East Earlsboro field will be curtailed 66-2/3 per cent of potential authority with the umpire carrying the same authority as at Oklahoma City.

From February 1 until March 31 all wells in the entire Greater Seminole area, Allen Dome, Sasakwa, Logan County, and Pearson-St. Louis and Asher will be curtailed to 30 per cent of the potential.

After February 1, all wells in the new Knoawa area or any extension made to the field will be curtailed 75 per cent and all other new producing areas or sands which may be brought into production prior to April 1, 1930, shall be curtailed 75 per cent of the potential.

Butte, Montana.—It is reported here that the Hope Engineering Company of Mt. Vernon, Ohio, and the Moody-Seagraves interests of Houston, Texas, have made satisfactory arrangements for supplying the Annaconda Copper Company with natural gas for its smelters. The gas supply is to be secured from northern Wyoming fields now developed which is expected to be augmented by new fields to be developed in Wyoming and Montana. It is expected that construction work will begin by early spring. The line will be more than 300 miles in length and will cost around $18,000,000.

Index to Statistical Section

ECONOMICS

Economic Progress Made During 1929 55
By H. J. Struth
Crude Oil Price Changes During 1929 64

CONSERVATION

Necessity Forces Effective Conservation in California 117
By Brad Mills
Unit Control Gaining Favor in Oklahoma-Kansas 138
By Warren Baker

DEVELOPMENT AND PRODUCTION

Oklahoma City Pool Gives State New Possibilities 68
By Warren Baker
New Fields Give Kansas Up-Turn During 1929 77
By Warren Baker
Eastern States Output Materially Increased During Year 85
North Louisiana-Arkansas Area Loses in Annual Output 88
By W. W. Moore
South America Establishes New Production Record 99
By Roy E. Leigh
Russian Oil Production in 1929 Exceeded All Records 111
By Roy E. Leigh
Deep Drilling Responsible for California Excess 119
By Brad Mills
Van Field Important Development in Texas During Year 127
By H. H. King
No Important New Discoveries in North Central Texas 129
By H. H. King
Mexia-Corsicana Area Has Low Rate of Decline in 1929 135
By H. H. King
Deep Drilling Around Old Domes Boosts Gulf Coast Recovery 141
By Jack Logan
Geophysics Responsible for 14 New Fields in Gulf Coast 145
By Jack Logan
Venezuela—Interesting Field Statistics 211

PIPE LINES AND TRANSPORTATION

Review of Pipe Line Construction in Central Texas 128
By H. H. King
Pipe Line Construction Revived in California During 1929 63
Pipe Lines Constructed in Southwest Texas and Gulf Coast in 1929 216
Natural Gas Line Work in North Texas During 1929 216

DOMESTIC AND FOREIGN STATISTICS

Trend of Posted Prices Since 1918 65
Discovery Wells, Texas and New Mexico 131
World's Production of crude Petroleum Since 1857 147
Petroleum Marketed in United States, 1859-1929 150
Petroleum Produced in United States, 1929, by States 152
Gravity—Petroleum Produced in United States, 1929 152
California Petroleum Production 154
Texas Production by Fields by Years 158
Louisiana Production by Fields by Years 162
Arkansas Production by Fields by Years 164
Wyoming Production by Fields by Years 164
United States Production Statistics, 1929 166
Venezuela—Summary of Active, Shut-In and Potential Production 211
Venezuela—Rigs in Operation 211

CHARTS

United States Production, Imports and Indicated Consumption of Crude Petroleum 55
World's Petroleum Production Compared With United States, Russia, Venezuela 55
South American Oil Production by Countries 56
Daily Average Production of South America and Venezuela, compared with Oklahoma 57
Trend of Oil Production—Venezuela, Mexico 58
Production Trend and Status of Leading Oil Producing States 58
Growth of Petroleum Production, Leading States 59
Comparative Field Statistics 1929-1928; Well Data and Initial Production 59
Trend of Natural Gas Production 60
Imports and Exports—All Oils 60
Wholesale Revenue from Domestic Gasoline Sales 61
Gasoline Stocks and Consumption per Motor Vehicle 61
Trend of Motor Vehicle Registration and Gasoline Demand 62
Natural Gasoline, Prices, Oklahoma 62
Trend of Wholesale Fuel Oil and Distillate Prices 62
Oil Stocks—High and Low Prices 63

ALUMINUM FOIL
Protective Coatings for the Oil Industry

By STANLEY GILL, WALTER F. ROGERS and STANTON U. McGARY
RESEARCH DEPARTMENT—GULF OIL COMPANIES
Written Especially for THE OIL WEEKLY

THE recently developed application of aluminum foil as a protective coating material was discussed by one of the present authors in a paper delivered before the A. P. I. at the Chicago meeting. Due to the interest which is being shown in these foiling processes and to their apparent great value to the oil industry, it is felt that a somewhat more detailed discussion of methods, performance and possibilities may be of some interest.

Foiling

The foiling procedure must be considered as a new method of surface protection. It makes possible the economical employment of corrosion-resistant metallic coatings under many conditions to which they have not been previously applicable. Previous methods by which protective metallic coatings were applied included the following:

A. Hot dipping.
B. Electro-plating.
C. Metal spraying processes.
D. Processes such as sheradizing and calorizing in which the parts to be coated are heated in contact with the powdered coating metal.
E. Rolling processes whereby a thin film of the resistant metal is rolled onto the surface of the parts to be protected.

The foiling procedure extends the use of metallic coatings to a great number of conditions under which none of these methods is applicable or economical. From the work which has been done up to the present time, it seems that the development of foiling will result in practical application of metallic protective coatings under a great variety of conditions and with a great reduction of industrial corrosion losses.

Simplicity is essential to any process which is to find wind industrial application. The following procedure possesses this merit. Essentially, it consists of nothing more than sticking a thin sheet of the protective metal to the surface which is to be protected, using an adhesive of proper characteristics. The ease of application is surprising. With crews without previous experience in the application of foil, we have had no particular difficulty in coating completely the roof of an 80,000-barrel tank with 10 or 12 mandays labor. Skilled supervision is, of course, essential; but a wide usage of foiling methods will rapidly develop operatives trained in the application of this material.

Metals Used for Foiling

Basically, any metal which can be rolled into thin sheets can be applied as a protective coating. Up to the present time, however, all of the industrial applications have been made with aluminum foil. It appears probable from the work which has been done, that aluminum will prove to be the most widely applicable of all metals for foiling application. Aluminum possesses certain marked advantages for this purpose. It can be readily fabricated into foils of any desired thickness and with the physical properties which are most desirable. It possesses excellent corrosion resistance under a very great variety of conditions. Due to its light weight, the coverage is greater than with other metals. Its pleasing appearance is of great importance for many applications. We believe, therefore, that aluminum foil will be highly satisfactory for almost all foiling applications. The use of other metals will probably be limited to cases in which corrosive conditions preclude the use of aluminum. Thus, lead foil may be used against weak sulfuric acid, which would destroy aluminum. Zinc, tin, copper and brass foils will also find some application. From the standpoint of the oil industry, aluminum foil may be expected to serve most purposes very satisfactorily.

Thickness of Aluminum Foil Coatings

Practical applications have been made with aluminum foils from .0015″ to .005″ in thickness. In general, it may be said that foil less than .003″ in thickness should be used only under conditions where severe corrosive and mechanical conditions will not be encountered. The application of the thin foils is somewhat difficult, due to their fragility, but foil .003″ or more in thickness can be applied without difficulty. Foil having a greater thickness than .005″ is too heavy for easy application and will probably possess no great applicability.

The success of any foiling applica-

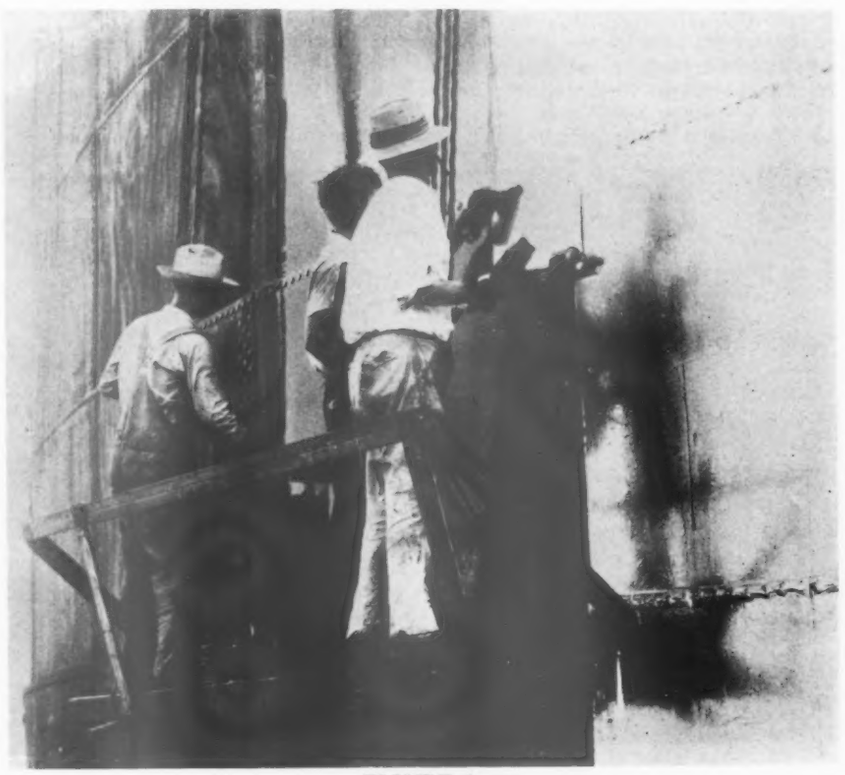


FIGURE 1
Applying aluminum foil to the shell of a 55,000-barrel tank

tion is, of course, absolutely dependent upon the use of a suitable adhesive. Much work is being done toward the development of foil adhesives and it is probable that many good materials will be available in the near future. Of the adhesives which we have tested up to the present time that manufactured by Technical Products, Inc., of Dallas, has proved most satisfactory.

This concern cooperated with the writers of this paper and with representatives of the Aluminum Company of America in the early development of the foiling process. Their adhesive has been used for practically all of the industrial foil applications which have thus far been made and exposure tests which have been in progress since the inception of this work indicate that its efficiency as an adhesive is not at all impaired by weather exposure of the foiled surfaces.

This Technical Products adhesive is not applicable under conditions where resistance to petroleum hydrocarbons is involved. Preliminary exposures have indicated that aluminum foil coatings promise to afford a satisfactory solution of many of the tank corrosion problems which are encountered in handling high-sulfide oils. For these applications, an oil-proof adhesive is necessary. Much work is being done toward the development of oil-proof adhesives and a number of materials which afford considerable promise have been developed. The use of such special adhesives, like the use of metal foils other than aluminum, will probably be limited to special conditions.

Applications of Foil

The use of foil protective coatings, because of its newness, is very much in process of development. It is scarcely possible at the present time to more than indicate the range of possibilities. As related specifically to the oil industry, there are many conditions under which aluminum foil promises to result in very great savings. These specific applications will be discussed in detail below. In general, the following considerations may be said to favor the use of foil:

A. Severe corrosive conditions under which paints have been found inadequate. The cost of aluminum foil applications is only slightly greater than the cost of special corrosion-resistant paints such as those which are used on the interiors of tanks, and there are many conditions under which the foil may be expected to afford splendid protection.

B. Conditions under which temperature reduction must be considered. An excellent example of this is the application of foil to the exteriors of oil storage tanks. Practical applications of this type have resulted in remarkable reductions of evaporation losses.

C. Similar properties appear to make aluminum foil highly adaptable for use on refrigeration equipment. Tests at present in progress indicate that remarkable economies can be effected by its use in this connection.

D. The appearance of the aluminum foil is also a great inducement to its use under many conditions.

E. For atmospheric exposure the foil applications will have a life far in excess of that of any paint. This alone will more than compensate for the added cost of the foil and all other savings will be made, in effect, without cost.

FIGURE 2
A foil-coated tank

Uses of Foil in the Oil Industry

The applicability of aluminum foil coatings to many oil industry problems is undergoing intensive investigation. Many of these applications must as yet be regarded as pure experiments and these will not be discussed here. The applications which have either proven their worth or shown sufficient promise to indicate probable value are:

A. For the exterior of storage tanks for crude oil and refined products.

B. Coatings for tank cars.

C. Coatings for tanks used for the bulk storage of gasoline.

D. For the protection of the undersides of steel roofs of tanks handling high sulfide oils.

E. For the protection of the interior surfaces of lease tanks handling oil, water and gas of a corrosive nature.

F. For the protection of pipe-line coatings against soil stress effects.

Evaporation Reduction by the Use of Aluminum Foil

Aluminum foil coatings for the exteriors of large tanks have definitely proven their value in the reduction of evaporation losses. The importance of these evaporation reductions is so well known as to make unnecessary any detailed discussion. The oldest test of foil for this purpose is located on the Winkler County property of the Gulf Pipe Line Company. Five tanks are included in the test. Although the test has not yet proceeded far enough to make possible an exact estimate of the evaporation reduction which will be effected, the data up to the present time indicate a very great advantage for the foil coating. Significant data covering this test are given in Table I. It should be noted that only two months of extremely hot weather are included in this test period and that far greater savings are to be expected during the hot weather than during the cooler months. Results similar to these are being obtained from other tests which have not been in progress for so great a length of time. Exposures of foil over a period of a year indicate that it does not undergo any great loss of reflectivity during this period. Paint films tend to undergo a great loss of reflectivity upon prolonged exposure to the weather, and it is felt that this is another pronounced advantage for the foil application. An idea of the relative heat reflectivity of various surfaces is given by the curves of Figure 4. These curves were obtained by lab-

FIGURE 3
The roof of a foil-coated 55,000*-barrel tank*

oratory methods and will not be discussed in detail here, but the much lower temperature resulting from the use of foil is noteworthy.

Tank Cars

The use of foil coatings for tank cars affords several marked advantages. Here evaporation savings are even more important than in the case of tanks handling crude oils, and great savings are to be anticipated from the use of foil. The appearance of the foil is also a most important consideration in the coating of tank cars. In this connection, it is interesting to note that the appearance of the foil coatings will not be seriously effected by having oil spilled upon them, since they can be easily and completely cleaned. Neither does the smooth aluminum foil film collect dirt as do most paint coatings.

Bulk Storage Tanks for Refined Products

Foil coatings seem to be particularly adaptable for use on bulk storage tanks used for the handling of refined products. Long life and continued good appearance of the coatings are here more important than in the other applications. Evaporation saving is, of course, the main consideration dictating their use.

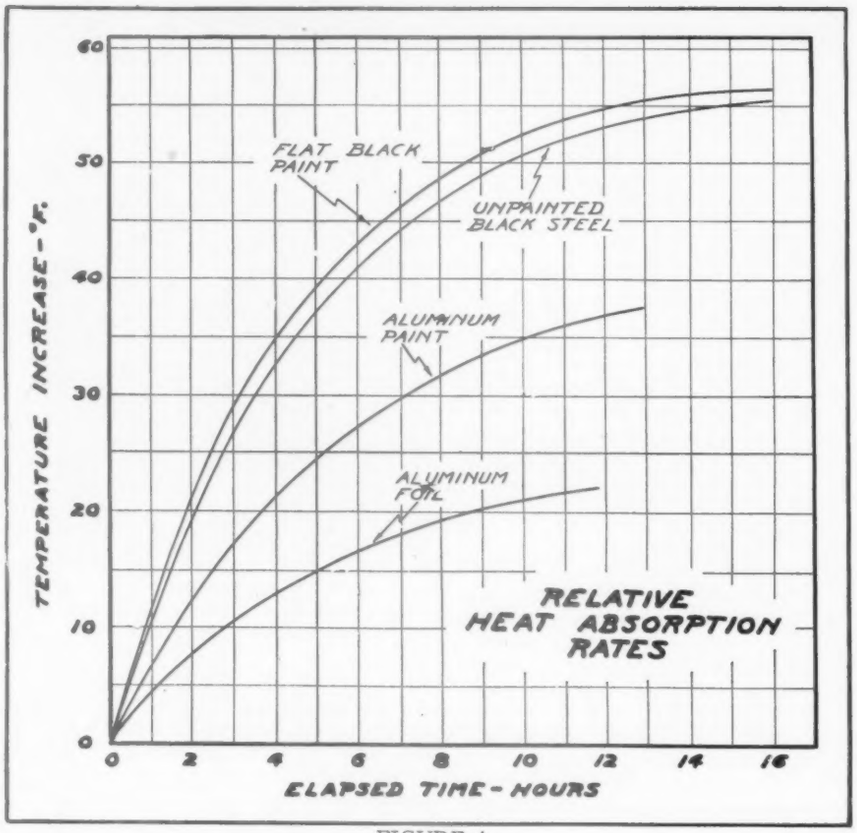


FIGURE 4

Protection of Tank Interiors

Very serious tank corrosion is encountered in handling oils of high sulphur content. This problem has become more or less acute in recent years, due to the development of high-sulfide production in West Texas. It may be divided into two more or less distinct divisions.

The first of these is the corrosion of metal in the vapor space of tanks. This effects particularly working tanks on pipe line systems, but must also be dealt with in other branches of the industry. An entirely analogous problem is presented in the corrosion of run-down tanks in refineries.

The foiling procedure was developed originally for application to the interior vapor spaces of large tanks handling sulfide crudes. Previous tests had shown aluminum to be almost per-

TABLE I

Preliminary data on evaporation test of five 80,000-barrel steel-roofed tanks filled with Winkler County crude.

Tank No.	How painted	Vapor space Temperatures during a typical 24-hour period			Barrels loss during first 4½ months of test*
		Maximum	Minimum	Change	
1620	Not painted	127	83	44	400*
1621	Aluminum paint, roof and shell	111	82	29	375*
1625	Aluminum paint, roof and top ring; red paint shell	113	84	29	325*
1622	Aluminum painted shell; insulated roof	105	86	16	140*
1624	Aluminum foil roof; aluminum painted shell	102	83	22	80*

*These figures for evaporation loss are based upon average gauges corrected to 60°F. Due to the inherent inaccuracy of this method any of these figures may be in error by at least 60 barrels, plus or minus.

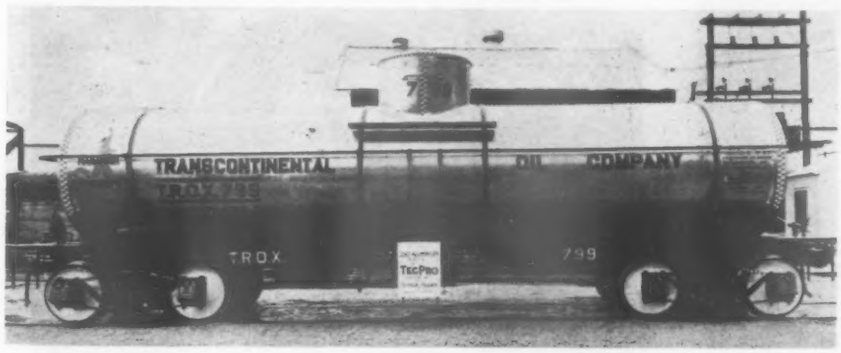


FIGURE 5
Foil-coated tank car

FIGURE 6
A test of foil coating on the interior of a lease tank handling high sulfide West Texas crude. Note the severe corrosion of the uncoated steel

fectly resistant to corrosion under these conditions. Extensive experimentation with the cooperation of numerous paint manufactures has not yet disclosed an entirely suitable oil-proof adhesive to use under these conditions. The development of such an adhesive is to be expected in the near future. Preliminary experiments with foil coatings, using adhesives which were far from oil-proof, have proven entirely satisfactory. Such coatings, when exposed in the vapor spaces of tanks handling high-sulfide oil, gave a protective life far in excess of that which had been obtained from coatings of any other type. Practical application of foil for this purpose must await the development of good oil-proof adhesives. When such good adhesives become available, foil coatings may be expected to find extensive application on tank interiors.

The second field in which tank corrosion is extremely serious is in the case of flow-tanks handling production of oil and water in high sulfide fields. Experience with all-aluminum bolted lease tanks in the West Texas area indicates the possibility of satisfactory application of aluminum foil for the protection of the sides of such tanks. Here again no progress can be anticipated until a suitable oil-proof adhesive material has been developed. It is certain that foil applied with a suitable oil-proof adhesive will have a life far in excess of that of any paint coating of comparable cost.

Aluminum Foil for Pipe Lines

It was stated in the paper which Mr. Gill delivered before the American Petroleum Institute meeting in Chicago that the use of aluminum foil for the protection of pipe lines against corrosion was to be regarded as purely experimental and that no conclusions could be drawn as to its probable value. Since that paper was written, an inspection has been made of a series of coating tests which have been exposed for six months in a soil of extremely corrosive character and in which very severe soil stress action is encountered. This test includes our earliest applications of aluminum foil to buried pipe lines. Although the tests were far from complete, the results are so encouraging as to warrant a definite statement that the use of foil affords considerable promise.

FIGURE 7
Spiral application of aluminum foil in a pipe line coating test

An example of the behavior of the foil in this test is given by Figures 8 and 9. The first of these photographs illustrates the condition of a certain coating after six months burial in this test. The coating is very badly stressed, has lost the greater part of its life and flexibility and the pipe is undergoing active corrosion. Figure 9 illustrates the condition of the same coating, after the same length of time, on the same line and in the same soil, but protected with .002″ thick aluminum foil. The foil has been removed to show the excellent condition of the coating which was to all appearances in as good condition as at the start of the test.

This first test has served to establish certain requirements which must be met in building up aluminum foil coatings for the protection of buried metal. These are:

A. Aluminum foil less than .003″ in thickness should not be used.

B. There must be sufficient coating between the foil and the pipe to absolutely prevent contact between the two.

C. It is apparently essential that the foil should be stuck tightly to the pipe.

D. The foil coating must be smooth and free from wrinkles.

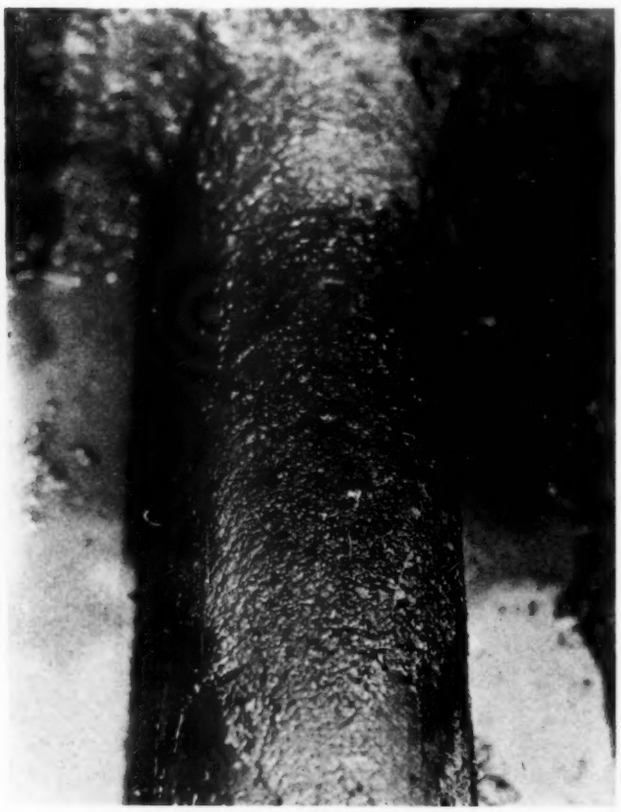


FIGURE 8
Soil stress of an unprotected bituminous pipe line coating

FIGURE 9
Pipe protected by aluminum foil. Part of the foil is removed

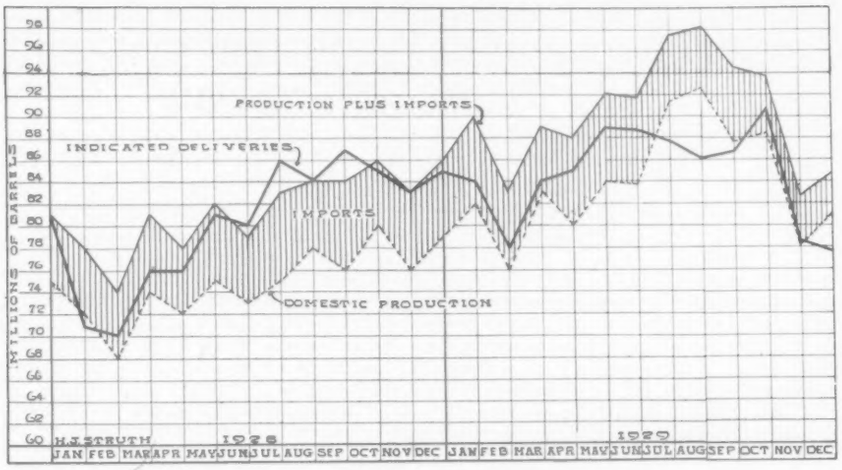

PRODUCTION PLUS IMPORTS
INDICATED DELIVERIES
IMPORTS
DOMESTIC PRODUCTION
MILLIONS OF BARRELS
H.J.STRUTH
1928
1929
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

FIGURE 2
United States Production, Imports and Indicated Consumption of Crude Petroleum

Economic Progress Made During 1929

By H. J. STRUTH
Staff Economist

NUMEROUS important developments were indelibly stamped upon the records of the petroleum industry during 1929, but perhaps the greatest single contribution to its future welfare was the realization of the need for production control. Had it not been for the adoption of curtailment measures, particularly in California and Oklahoma, the industry would have ended the year in far worse condition than the facts indicate. As it was, overproduction of crude had reached such proportions as to make actual curtailment of production inadequate to eliminate large surplus accumulation. Nevertheless, while overproduction was not entirely eliminated, it can be said that real economic progress was made in demonstrating the feasibility of balancing supply with demand.

A compilation of crude production for 1929, based upon the daily averages reported during the year by American Petroleum Institute, reaveals that the total aggregated 1,000,917,100 barrels, or an increase over 1928 of nearly 100,000,000 barrels. Not only was this the greatest annual production in the history of the industry, but it also represented the greatest increase for any one year. A preliminary survey of normal crude requirements during 1929 shows that the industry actually overproduced to the extent of at least 233,000 barrels daily. This is based

World's Petroleum Production Compared with United States, Russia, Venezuela

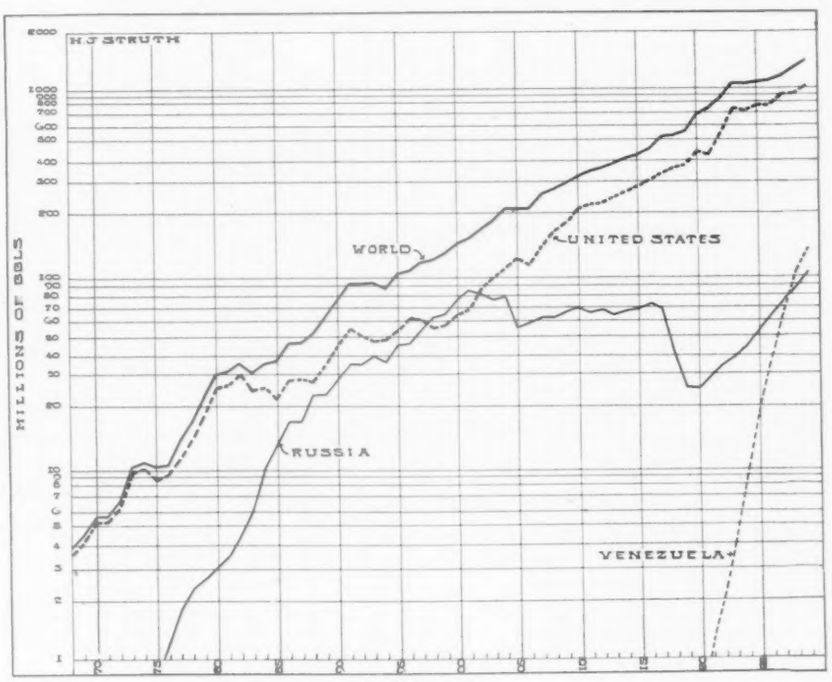


FIGURE 3

South American Oil Production by Countries By Years, 1896 to Date

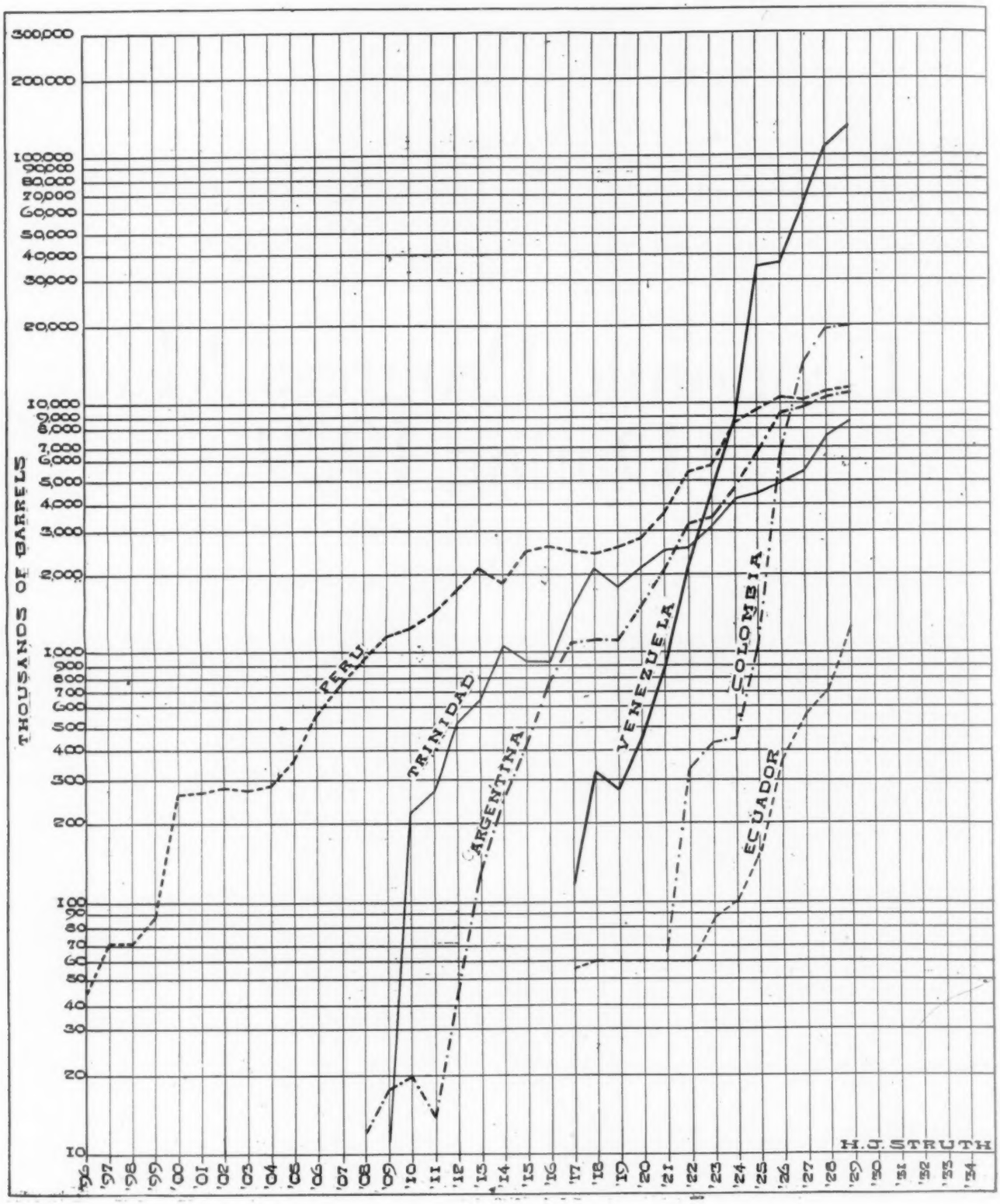


FIGURE 4

upon the fact that the normal demand averaged about 2,509,238 barrels daily, whereas actual production averaged about 2,742,238 barrels. It is therefore evident that if some form of curtailment had not been adopted in the flush areas of the country, the total production would have aggregated 1,112,999,000 barrels, or a daily average of 3,049,000 barrels. This would have boosted the excess daily output to 540,000 barrels and added nearly 200,000,000 barrels of crude to storage. Thus, there is sufficient proof that curtailment exerted a somewhat stabilizing influence upon the crude situation.

Curtailment Too Late

A review of producing and marketing conditions during 1929 reveals, unquestionably, that the seriousness of overproduction was realized too late in the year to accomplish the purpose for which such measures were designed. Yet, at the first feeble sign that curtailment was in force optimism pervaded the ranks of producers and many believed that the ills of the past had completely vanished. It was perhaps just such false confidence that artificially stimulated the crude market to the extent where posted prices prescribed a trend that hinted strongly of stabilization. This erring of judgment stands out as one of the follies of the year and represented the greatest obstacle to sound progress in the direction of complete stabilization. If crude prices had been adjusted during the early part of the year, when there were unmistakable signs of overproduction, and had been used as a club against over-development of flush areas, it is a foregone conclusion that proration would have been more eagerly, as well as more effectively, adopted by the industry at large. The slashing of crude prices in California proved to be the decisive signal for curtailment, but the re-establishment of former prices immediately following such enforced curtailment was undeniably an error of judgment. Similarly, the delay in justifiably reducing posted prices in California, predicated upon the belief that curtailment would be adopted, proved to be a serious mistake. In all of the history of the industry, conditions such as those which prevailed during 1929 have been more or less automatically adjusted by the laws of supply and demand. During 1929, however, the normal functioning of these laws was retarded through the optimistic interpretation placed upon the effectiveness of proposed curtailment measures.

During practically all of last year, Texas has been a serious over-producer of crude, which, for the most part, was encouraged by the apparent stabilization of posted prices. Continually, throughout the year, curtailment was the subject of much discussion by Texas operators, but except for the admirable effectiveness of such measures in Winkler and Pecos Counties, over-production was rampant throughout the state. During the latter part of 1929, although some progress had been made in production curtailment, it became evident that a number of prolific pools were being extended so rapidly as to invite even more serious over-production in the near future. It is only necessary to weigh the facts at hand upon which are determined the crude requirements for this year, to visualize the fact that overproduction is still a serious factor. The sharp upward trend since January 1, in comparison with the necessity for a downward revision in refinery crude runs, is conclusive evidence of the need for greater restrictive measures in the production of petroleum. Curtailment has been proven feasible in the United States, but it seems that a greater force than mere agreements is necessary to accomplish the desired results. Probably a nation-wide reduction in crude values would furnish the needed stimulus for recognition of the immediate need for retarded development as well as curtailment of production from existing wells.

Prices Steady

It will be noted by the accompanying charted history of petroleum prices, Figure 1, that the price level during 1929 was maintained at a remarkably steady rate, despite the fact that over-production was more pronounced during this period than at any time in the history of the industry. This, alone, is contrary to the conditions which existed and prac-

Daily Average Production of South American and Venezulea, Compared with Oklahoma.

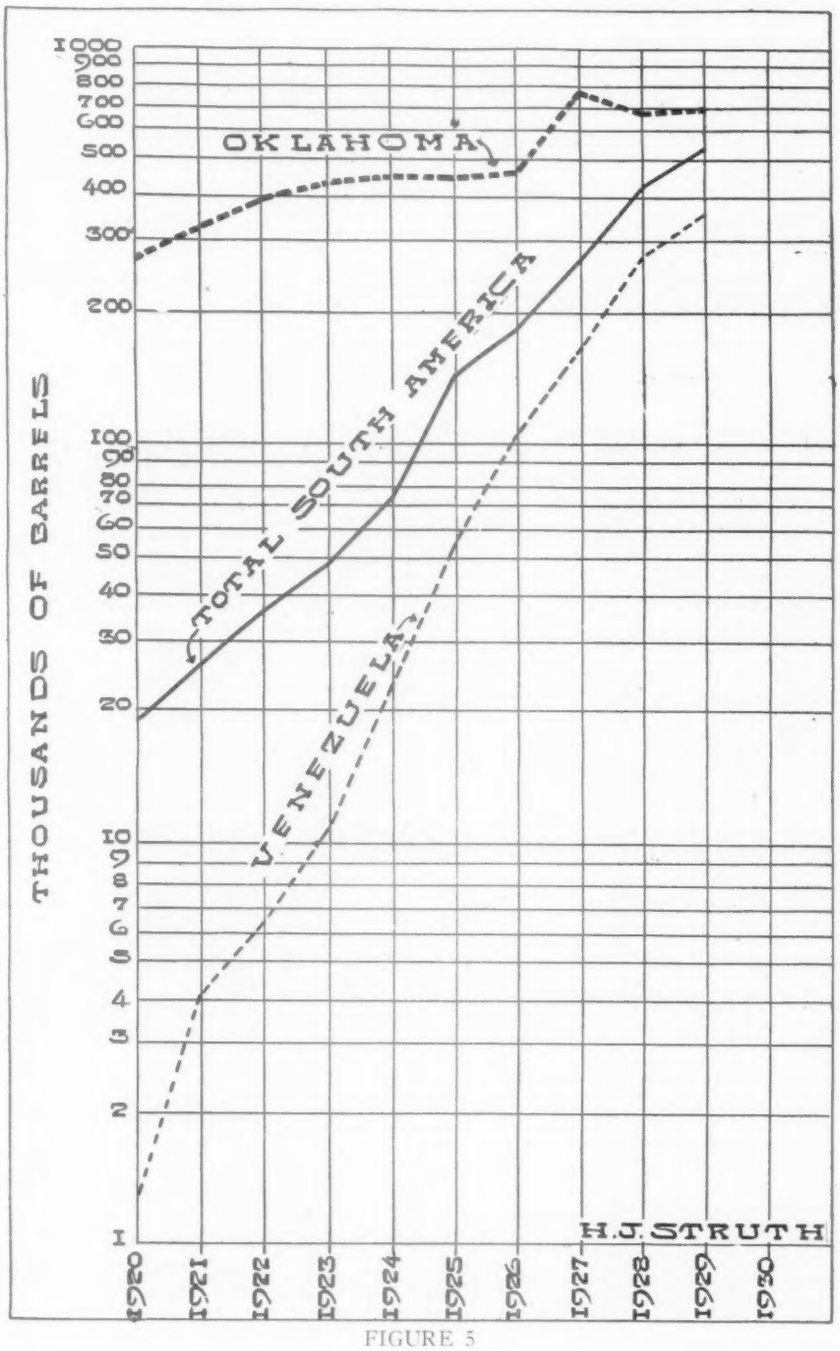


FIGURE 5

Trend of Oil Production—Venezuela, Mexico

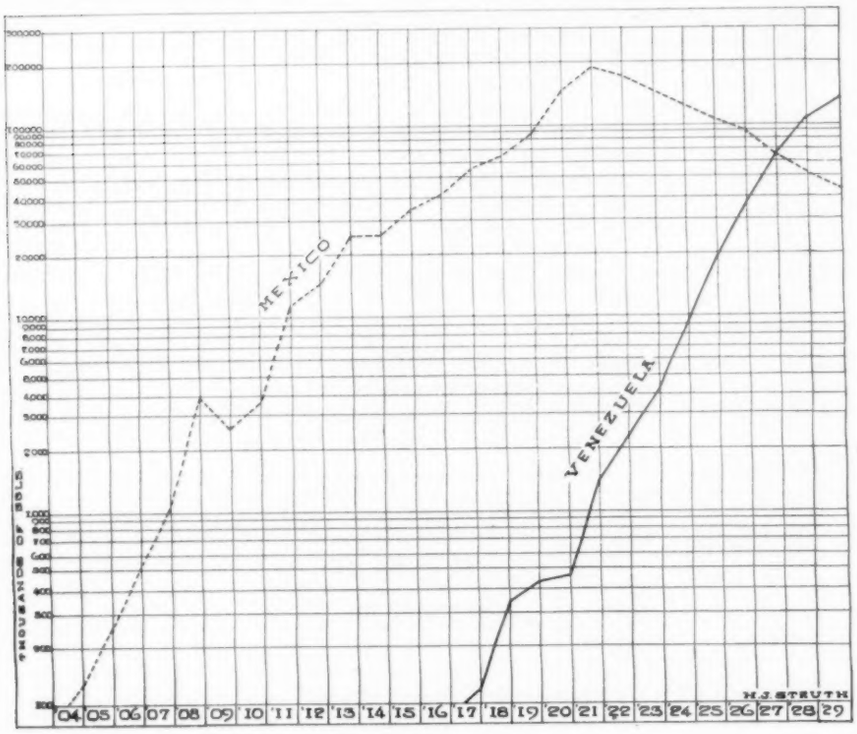


FIGURE 6

Production Trend and Status of Leading Oil Producing States

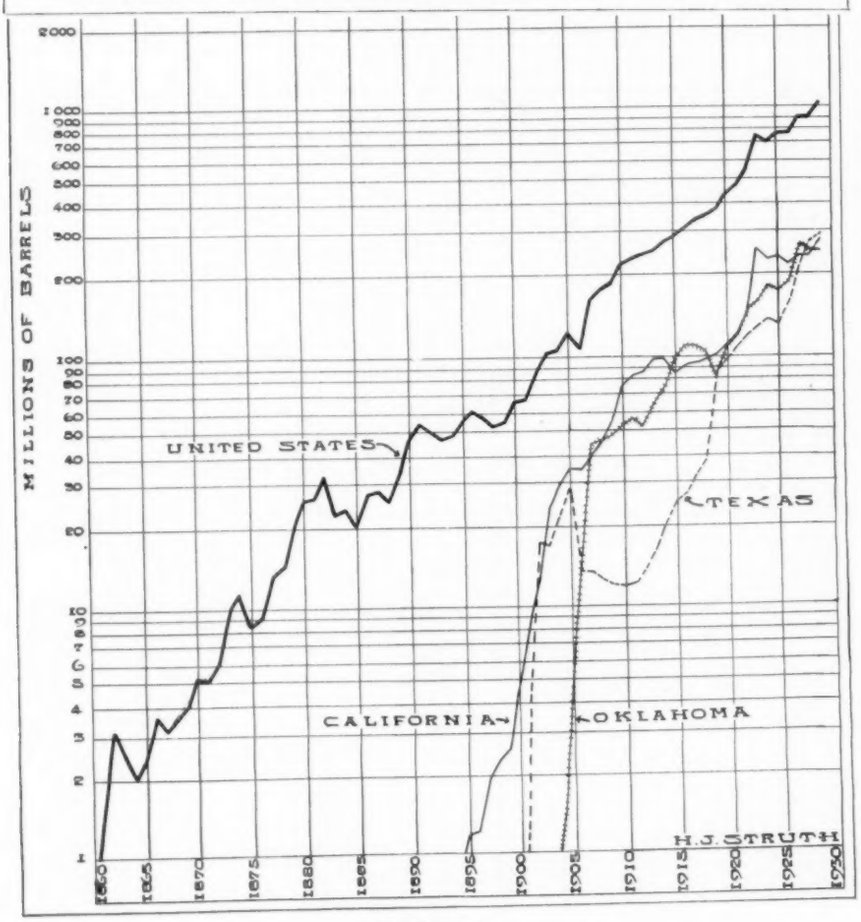


FIGURE 7

tically establishes a precedent. In the final analysis, the steadiness of crude prices during 1929 can be said to have been founded almost entirely upon delayed realization of effective curtailment. The inauguration of proration in California on November 1, accompanied by restoration of former prices there, was perhaps the chief stabilizing factor in the industry's crude markets, delaying until the opening month of this year the reaction that appeared inevitable. While everyone agrees that proration succeeded in curbing the excessive production of crude, it is apparent now that the progress made in the latter part of last year is really only the beginning of a period of curtailment that must necessarily extend through 1930. Merely curbing production to the limits prescribed by pipe line outlets or storage facilities is to defeat the real purpose of curtailment. Undoubtedly, through the forceful aid of lower crude prices, curtailment will witness greater momentum this year. At any rate, unless the industry whole-heartedly supports the movement to balance supply with demand, there will be little justification for higher crude or refined oil prices. The immediate future of the industry revolves around the supply situation, and the sooner production is brought down to a reasonable level, the sooner will the market reflect such improvement.

Imports

From time to time, it is pointed out by many in the industry that something should be done about the influx of foreign petroleum into the United States. While it may be true that the domestic situation would have been better without imported crude, it must be conceded that it is vitally necessary to the future welfare of the industry to not only utilize foreign crude but to increasingly develop foreign oil resources. What better argument can be resorted to in connection with the conservation of oil than to say that the American petroleum industry should be encouraged to acquire, develop and consume foreign oil production? The law of self-preservation implies conservancy to mean that we should foster the foreign resources first, to the point of frugality of our own sources of supply. Why, therefore, is it not obviously to our advantage to continue to import foreign oil produced by American companies? The whole trouble lies in the fact that American interests at home are too anxious to exploit the possibilities of their respective holdings, regardless of the economic significance of such procedure. In the interests of conservation, therefore, it is up to the industry in the United States to anticipate the influx of foreign petroleum, to the exclusion of American production, and produce only the necessary quantities required. Proration can quickly solve the problem of a growing influx of foreign petroleum, whereas every barrel imported should spell a greater future domestic supply at prices more in line with economic utilization. The accompanying chart, Figure 2, shows the extent of the margin between total consumption and total supply, plainly in-

dicating the necessity for further curtailment of domestic production in proportion to the margin between demand and total supply, which is represented by imports.

In a recent issue of THE OIL WEEKLY it was pointed out that over-production was world-wide in 1929. Judging from final figures being received from foreign countries, it is apparent that this statement presented a true picture of the oil situation. Aside from Mexico, where production continues to decline, it is seen that all other oil producing countries of the world made remarkable forward strides during 1929. Figures 3, 4, 5 and 6 present a graphic view of the oil situation of the world in retrospect. Figure 3, shows the sharp gain in oil production of the world in 1929, with the chief contributors, United States, Venezuela and Russia. The rapid strides being made by the various South American oil producing countries is graphically illustrated in Figure 4, while Figure 5 offers a striking illustration of the remarkable rate of increase in oil production in Venezuela, as compared with the production of our own state of Oklahoma. A comparison of Venezuela's production with that of Mexico, as shown in Figure 6, depicts the meteoric rise of oil production in Venezuela and the gradual decline of production in Mexico. These records furnish conclusive evidence of the growing potential supply of petroleum throughout the world, putting into the discard former predictions of an oil famine. In consequence of the accelerated development of foreign petroleum resources, the proportion of the world's oil produced in the United States is gradually declining. This is apparent by the fact that in 1927, the percentage produced by the United States was 71.5, while in 1928 it was 68.2, and in 1929, 67.8 per cent. While it is not expected that the United States will relinquish its place as the foremost producer of petroleum in the world for many more years to come, it is apparent that the struggle for supremacy in oil production will continue to become more pronounced with Venezuela and Russia increasingly important factors.

Texas Largest Producer

The United States production record for 1929 shows that Texas, for the second succeeding year, ranked foremost as the largest producing state. This was somewhat surprising in view of the unusually large production in California. As it was, California succeeded Oklahoma as the second largest producer, while Oklahoma was third. The status of the leading producing states is shown graphically in Figures 7 and 8.

Preliminary data reveals that nearly 24,000 wells were drilled in the United States during 1929, yielding an aggregate initial (24-hour) production of nearly 6,000,000 barrels. Detailed field operations show that the largest number of wells were completed in the Eastern States, while the largest quantity of new oil production was obtained in Texas. While the total number of wells completed showed a considerable gain over 1928, it is apparent that these completions were not as successful as during 1928. This is attested by the fact that the average initial production per well had declined from 590 barrels per well in 1928 to 410 barrels in 1929. This fact indicates that drilling must continue to be increased in proportion to the decline exhibited by successful completions and forcibly bears out the effect of the gas-oil ratio upon oil production. Figure 9 shows a comparison of field results for 1928 and 1929, graphically illustrating the outstanding

Growth of Petroleum Production Leasing States

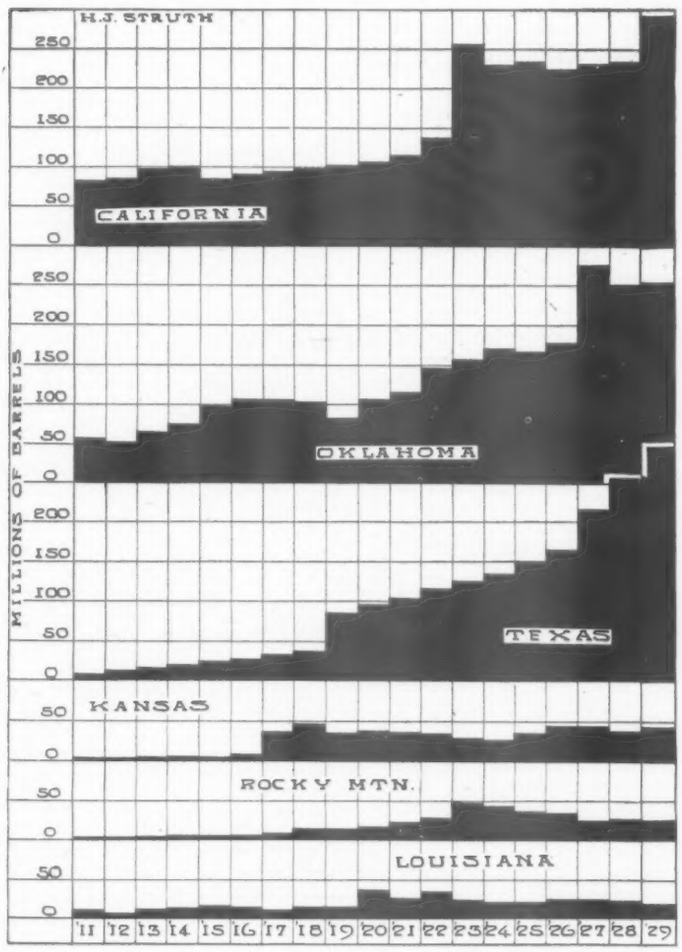


FIGURE 8

Comparative Field Statistics 1929-1928. Well Data and Initial Production

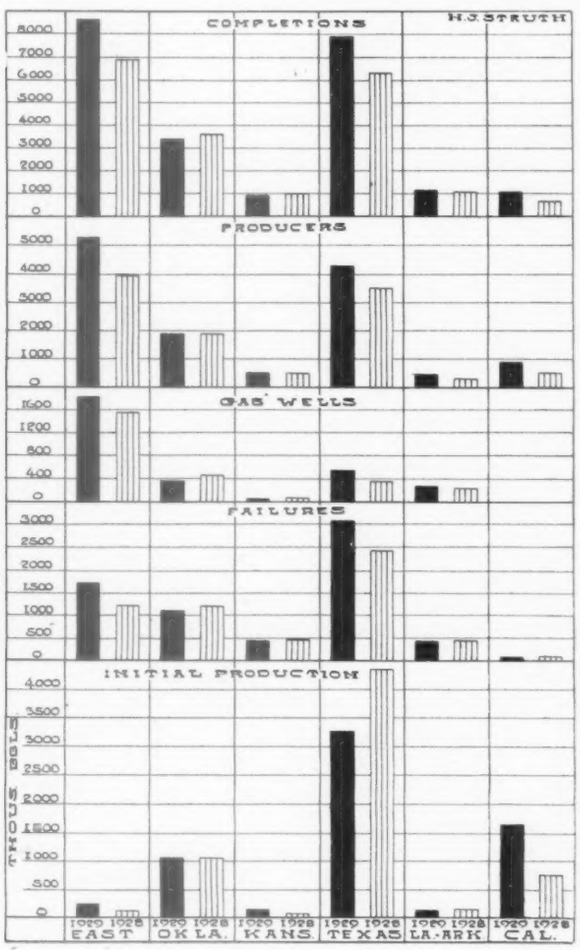


FIGURE 9

Trend of Natural Gas Production

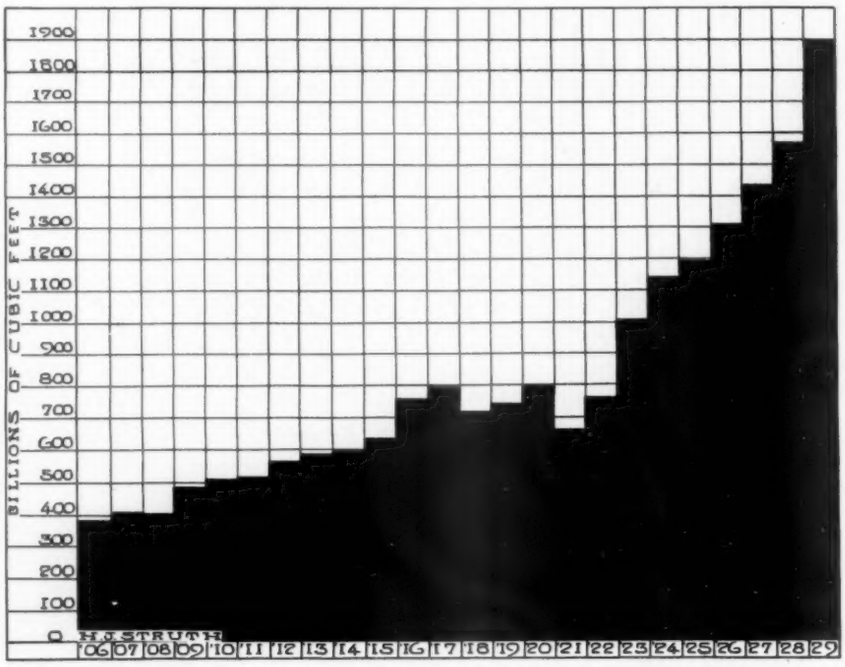


FIGURE 10

Imports and Exports—All Oils. Shows Balance in Favor of United States

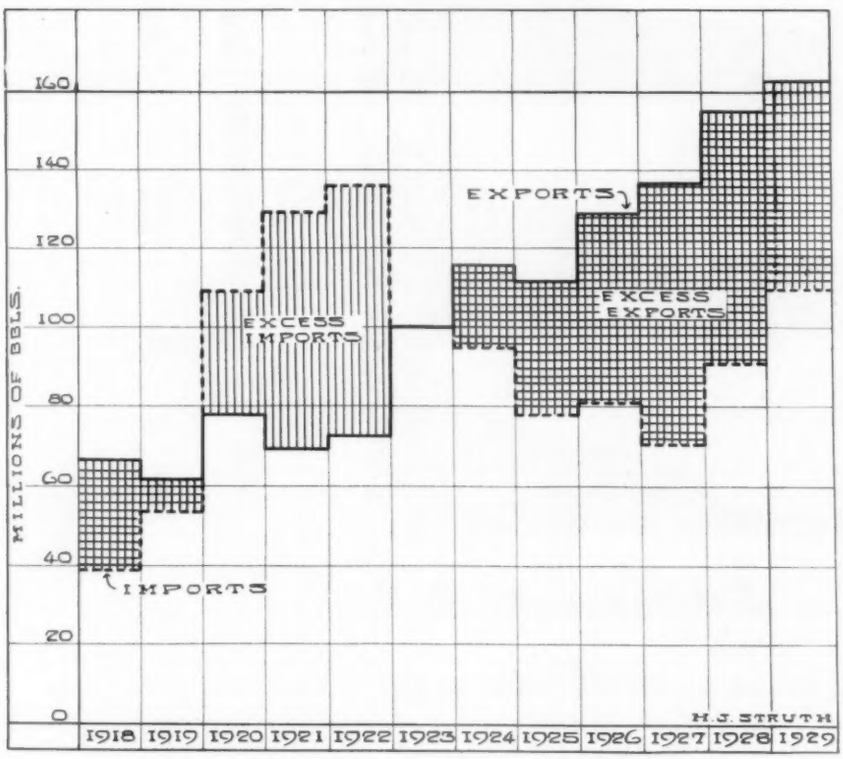


FIGURE 11

charges that occurred in the principal producing areas.

Natural Gas

The natural gas industry figured prominently in the developments of 1929, breaking all records with a total estimated output of about 1,900,000,000,000 cubic feet of natural gas. Numerous long-distance transmission lines were completed during the year, making possible the utilization of natural gas hundreds of miles from the source of supply. Texas, California and the Rocky Mountain States figured most prominently in these developments during 1929. Some idea of the enormous growth in natural gas production in the United States can be gained from the accompanying chart, Figure 10.

The volume of business handled by the petroleum industry in 1929 was record-breaking from all angles. Not only was domestic consumption at the highest rate in the history of the industry, but foreign buyers created a considerable gain in the commerce of this country. Figure 11, showing the imports and exports of petroleum and its products, gives some idea of the favorable balance in trade credited to the United States. This is further proof of the desirability of continuing to import foreign petroleum into the United States, since this country, in turn, derives no little benefit from the foreign demand for petroleum products. As regards the domestic volume of business handled, it is evident that the industry did not profit in proportion to the unprecedented demand experienced. As a matter of fact, prices of petroleum products, particularly gasoline, were materially depressed as a as a result of continual over-production of both crude and refined oils. An example of the apparent loss in revenue experienced through over supply is shown in Figure 12. This represents the wholesale revenue from domestic gasoline consumption, by quarters, for the years 1928 and 1929. It is readily seen that the year 1929 resulted in materially lower gross revenue, which, in actual monetary value, represented a loss of more than $100,000,000. This is deplorable, in view of the unusually large demand experienced last year. The reason for this unsatisfactory condition is further amplified by a study of gasoline stocks and consumption per motor vehicle. This is presented in Figure 13. This chart shows that some improvement had taken place during 1928, but continued over-production in 1929 resulted in placing the supply in a rather unsatisfactory state. In contrast with the unsatisfactory market returns of the industry during 1929 is the trend of gasoline demand and motor vehicles, as shown in Figure 14. Here, it is shown that the rate of demand for gasoline has exceeded the rate in registration of motor vehicles, indicating that the demand for gasoline has grown by leaps and bounds. With such dependency placed upon gasoline and other petroleum products, it would seem that the industry should be the most prosperous in the world. It would be, if it were not for the bug-bear—over-production. Figures 15 and 16 show the trend of natural gasoline and fuel oil prices and also emphasize the effect of

Wholesale Revenue from Domestic Gasoline Sales

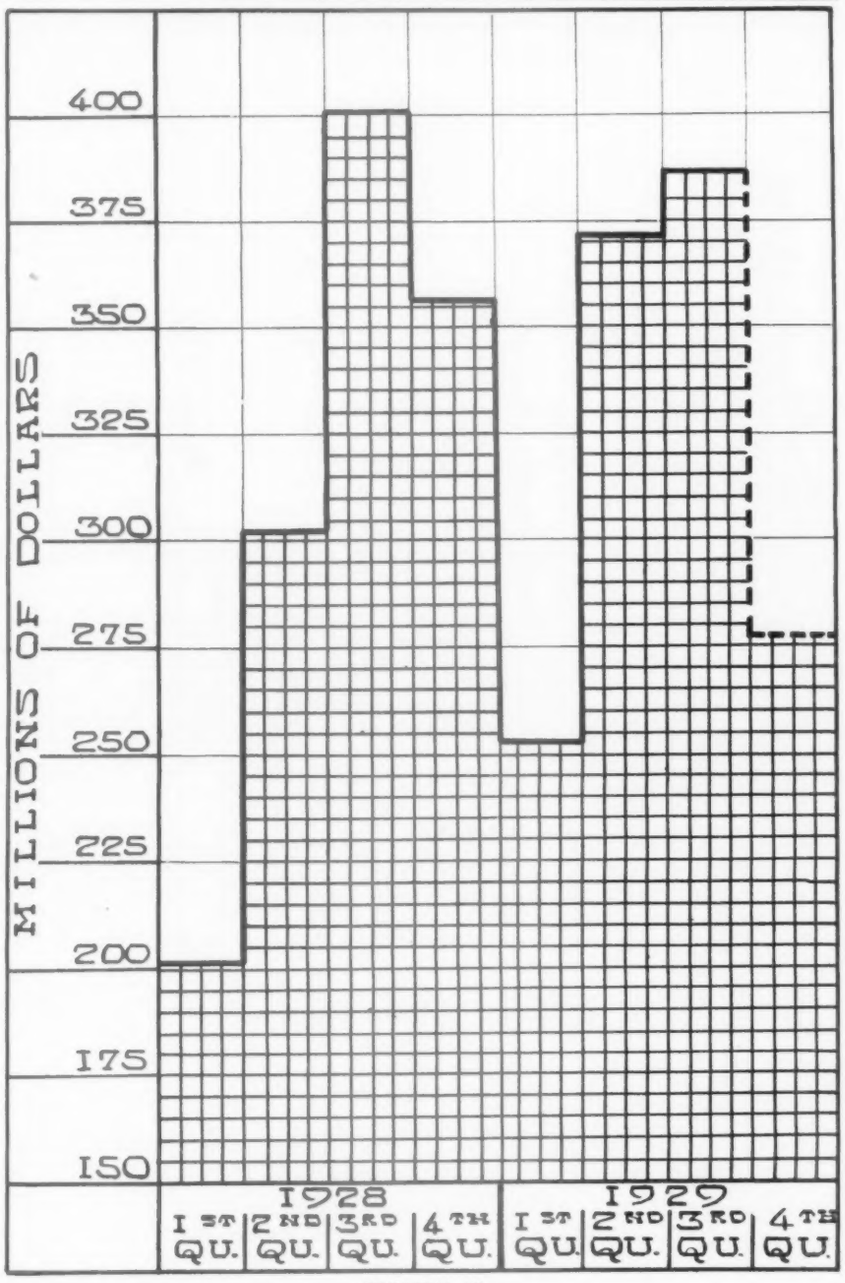


FIGURE 12

Gasoline Stocks and Consumption Per Motor Vehicle.

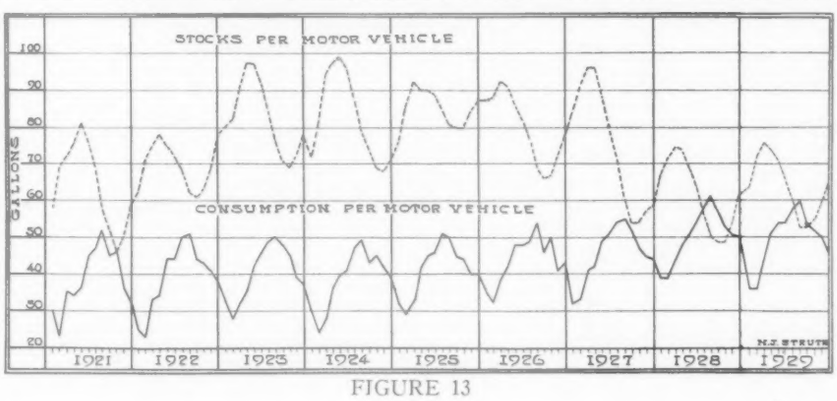


FIGURE 13

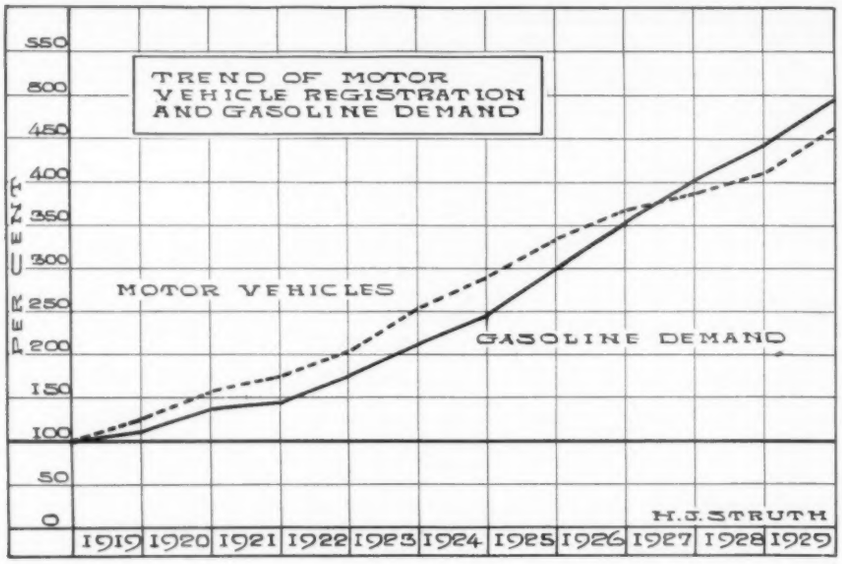

TREND OF MOTOR VEHICLE REGISTRATION AND GASOLINE DEMAND
PER CENT
MOTOR VEHICLES
GASOLINE DEMAND
H.J.STRUTH
1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929

FIGURE 14

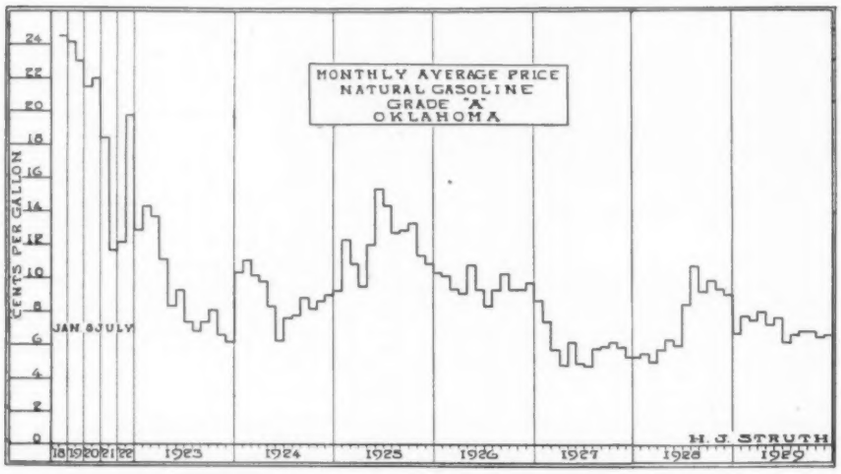

MONTHLY AVERAGE PRICE NATURAL GASOLINE GRADE "A" OKLAHOMA
CENTS PER GALLON
JAN. & JULY
H.J. STRUTH
1923 1924 1925 1926 1927 1928 1929

FIGURE 15

Trend of Wholesale Fuel Oil and Distillate Prices—Oklahoma

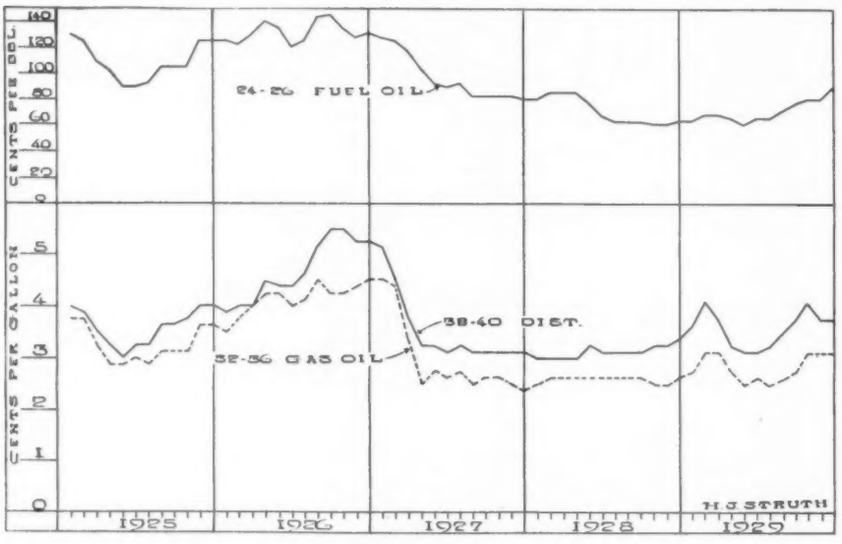


FIGURE 16

over-production on the markets of the industry.

Securities

Another circumstance that focused penerating light upon over-production conditions in the petroleum industry during 1929 was the reaction of oil security prices. In some quarters it was stated that the stock market reaction was general and it was only natural for oil stock prices to recede with the rest of the list. It was also stated that the oil industry was in better shape than most industries and was not entitled to be classed with other industrial stocks. As we review the past year, there is little doubt about the numerous unsatisfactory conditions which prevailed within the petroleum industry. These conditions were too well known in Wall Street to be ignored as bearish factors. It was only natural, therefore, to find oil stock prices declining with the same force as many of the industrials. The financial interests of the country are watching the petroleum industry with a keen eye. When the industry has demonstrated its ability to maintain a fair degree of equilibrium between supply and demand, it will not be necessary to broadcast that fact, as the "big board" will quickly reflect any substantial improvement. Everyone knows that the petroleum industry "made money" last year—more than in 1928—but Wall Street knows that it should have made considerably more. For a while, it was thought that the oil industry had successfully coped with the problem of over-production, and oil security values began to stage a come-back. However, subsequent developments proved the recovery was not sutained by the conditions which followed, with the result that the oil shares began to lag and finally break to new lows with the rest of the market. Many now believe that the oils will lead the next stock market rally. This depends entirely upon the course of action taken within the industry during the approaching season of larger demand. If proration is widened in scope and production is held at a normal level, and if the refining branch of the industry takes constructive steps to reduce still runs, the oil shares cannot fail to reflect the prospect of greatly improved earnings. It is up to the industry to accept the need for immediate action and place it foremost among the industrial leaders of the world, where it rightfully belongs. Figure 17 presents a graphic view of the range of a number of the leading oil securities on the New York Stock Exchange during 1929.

New Areas

The supply of oil was augmented during 1929 through the discovery of new prolific oil areas, while scientific advancement in the art of locating and producing petroleum attained important strides. At the same time, the art of manufacturing petroleum products was materially improved through the further advancement of scientific studies of distillation and cracking practice. Through enlargement and improvement of cracking facilities, the refining industry was able to increase the yield of gasoline from crude, on an average, of from 37.4 per

cent to 39.2 per cent. This, in combination with a larger potential crude supply places the industry in a position where extreme caution is required to prevent over-production. Only by giving careful study to the constantly changing conditions within the industry will it be possible to maintain a fair degree of equilibrium between supply and demand. It is therefore apparent that concerted effort will be increasingly necessary to insure against the production of an overwhelming supply of petroleum and its products. It is believed that the lessons of last year will prove adequate as an incentive to greater effort in the direction of control this year. The results attained during the last two months of 1929 show that it is possible to prevent the production of unnecessary oil supplies. If this effort is increased during 1930, and augmented by the adoption of adequate curtailment measures in the refining branch of the industry as well, there is every reason to believe that prosperity will reward all concerned.

High and low range in stock prices — leading oil companies — 1929-1928 — black bar 1929 — ribbed bar 1928

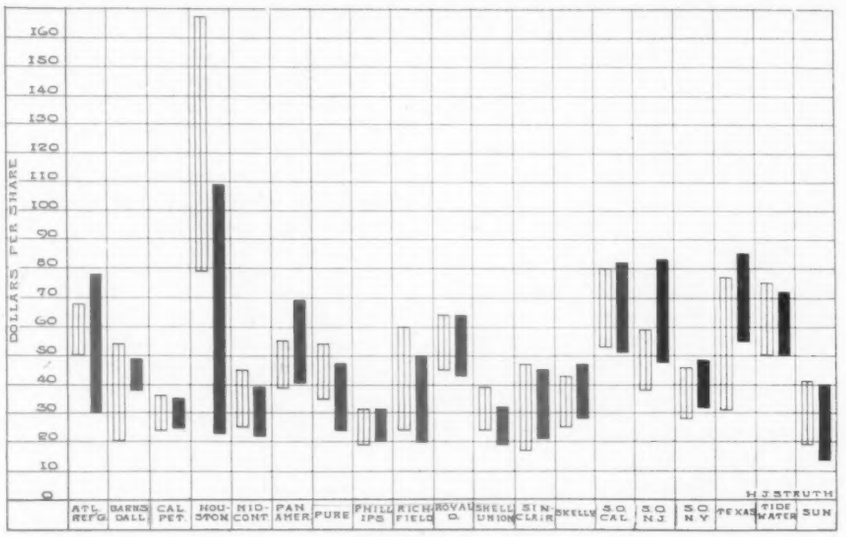


FIGURE 17

Pipe Line Construction Revived In California During 1929

AFTER two years of inactivity, pipe line construction in California came to life during 1929. Natural gas lines accounted for more than half of the total mileage, with oil lines showing a good gain over either 1927 or 1928. With the exception of Kettleman Hills, greatest atcivity of the past few years has occurred in the older developed fields.

Completion of a 285-mile, 16-, 20- and 22-inch pipe line to supply San Francisco and other Bay cities with natural gas from the Kettleman Hills and Buttonwillow fields was the outstanding project of the year. This line had been planned for years but the fear that the Buttonwillow district could not furnish a permanent supply of gas for such an extensive outlet caused the delay. Development of the Kettleman Hills field immediately revealed a supply of gas sufficient to satisfy the requirements of almost the entire state and the line was rushed to completion by the Pacific Gas and Electric Company.

The main line starts from the North Dome of Kettleman Hills, with the auxiliary or emergency line extending to the Buttonwillow field. From Kettleman Hills to Panoche Junction, a distance of 41 miles, 22-inch pipe was used. The line is of 20-inch construction between Panoche Junction and Milpitas, a distance of about 110 miles. The line makes a "Y" at Milpitas to serve different neighborhoods in the bay district. A 44-mile, 20-inch section furnishes the needs of metropolitan San Francisco, while a 35-mile, 20-inch line serves Oakland and other east Bay cities. The auxiliary line leading from Buttonwillow to Kettleman Hills is 55 miles in length and of straight 16-inch construction. The line was entirely of welded construction. High rock pressure at Kettleman Hills is sending the gas to San Francisco without booster stations, the capacity under such an arrangement being about 60 million cubic feet daily.

Standard Oil Company of California completed a 70-mile, 10-inch pipe line from Kettleman Hills to the Coast at Estero, a short distance from San Luis Obispo, to be used for transporting Kettleman Hills crude from the North Dome. A line of this size will carry a large quantity of the extremely high gravity oil produced in this district.

General Petroleum Corporation, through the construction of a 35-mile, six-inch line between Kettleman Hills and Lost Hills, provided an outlet for its own crude and a limited excess besides. The line has carried little crude but will be a vital link in the future.

An extensive network of natural gas lines was started during the year, the system to include many cities in the San Joaquin Valley. Kettleman Hills will supply the bulk of the gas.

California Gas Waste Legislation Advanced During Last Year

GAS waste in California during 1929 was so unreasonably high that conservation leaders and state officials have openly branded this huge loss of an important natural resource as little short of criminal. In the race to produce more oil in the critical fields, both large and small operators were guilty in what may be regarded as a flagrant waste of gas.

Santa Fe Springs, with an average daily waste of perhaps 500 million cubic feet, accounted for the bulk of gas blown into the air. This waste reached one billion cubic feet on several days, due to the completion of wells in bunches. The heat value of this gas was equivalent to more than 200,000 barrels of oil. The state of California expressed grave concern over the waste at various times but failed in a series of attempts to stop the practice.

Gas waste at Long Beach did not average much more than 100 million cubic feet daily, but even this figure is considered entirely too high. Increased production at Santa Fe Springs reduced the demands for Signal Hill gas, the natural result having been a greater waste than ordinarily would have been recorded. The conservation program inaugurated late in the year reduced the gas waste by about 25 per cent.

Ventura Avenue wasted an average of about 100 million cubic feet of gas during the first 11 months of the year, but a gas conservation plan was inaugurated December 1 which practically eliminated excess production.

Elwood was "up and coming" during the year and ran its average gas waste to a high figure, only to eliminate nearly all of the excess December 1 with the inauguration of a conservation agreement.

Although totals for the year are not yet available, gas waste in California approximated 400 billion cubic feet during 1929.

Crude Oil Price Changes During 1929

January 4—Pennsylvania crude (all grades) advanced 25 cents.

January 7—Mirando crude reduced 20 cents.

January 11—Luling crude reduced 20 cents.

Salt Flat crude reduced 31 cents.

Cedar Creek crude reduced 20 cents.

January 18—California crudes below 24 gravity reduced 15 cents.

January 24—Oklahoma-Kansas crudes reduced from 1 to 32 cents, establishing three-cent differential for each degree above 32 gravity and six-cent differential below 32. Texas crudes, except Panhandle, placed on same scale as Oklahome-Kansas crudes.

January 25—Elk Basin and Grass Creek, Wyoming, crudes, reduced 12 cents.

Rock Creek crude reduced 15 cents.

Lance Creek crude reduced 10 cents.

Big Muddy crude reduced five cents.

Illinois, Princeton, Plymouth, Lima-Indiana and Western Kentucky crudes reduced 10 cents.

Wooster grades crude reduced 15 cents.

Corning crude reduced 15 cents.

January 26—Pine Island, Haynesville, Bull Bayou, Louisiana, and El Dorado, Arkansas, light crudes reduced on gravity scale basis. Below 28, 78 cents, with a differential of six cents for each degree from 28 to 28.9 to 32.9, and three cents beginning with 33 to 33.9 and up to 44 and above.

Chalk field, Howard County and Mitchell County, Texas, grades posted at 65 cents a barrel.

Caddo, Homer, Crichton, De Soto, Louisiana, crudes reduced from 3 to 32 cents cents a barrel.

Bellevue crude reduced five cents a barrel.

Cotton Valley crude, above 36, reduced on same basis as Caddo crude.

Gulf Coast crude, Grade B, reduced 10 cents.

Canadian crudes reduced 10 cents a barrel, making new Petrolia price $1.90 and Oil Springs, $1.97.

January 29—Stephens, Arkansas, crude reduced five cents a barrel.

Ragland, Kentucky, crude reduced 35 cents a barrel.

January 30—Markham, Texas, crude reduced 10 cents a barrel.

February 15—Somerset, Kentucky, crude reduced 15 cents.

February 16—Oil City, Kentucky, crude reduced 15 cents.

March 12—Cabell and Somerset, Kentucky, crudes reduced 10 cents.

March 18—Elwood, California, crude reduced 24 cents on all grades between 34 and 42 gravity, inclusive, abolishing the posted price on lower gravities.

April 2—Salt Flat, Texas, crude advanced 20 cents to $1.00.

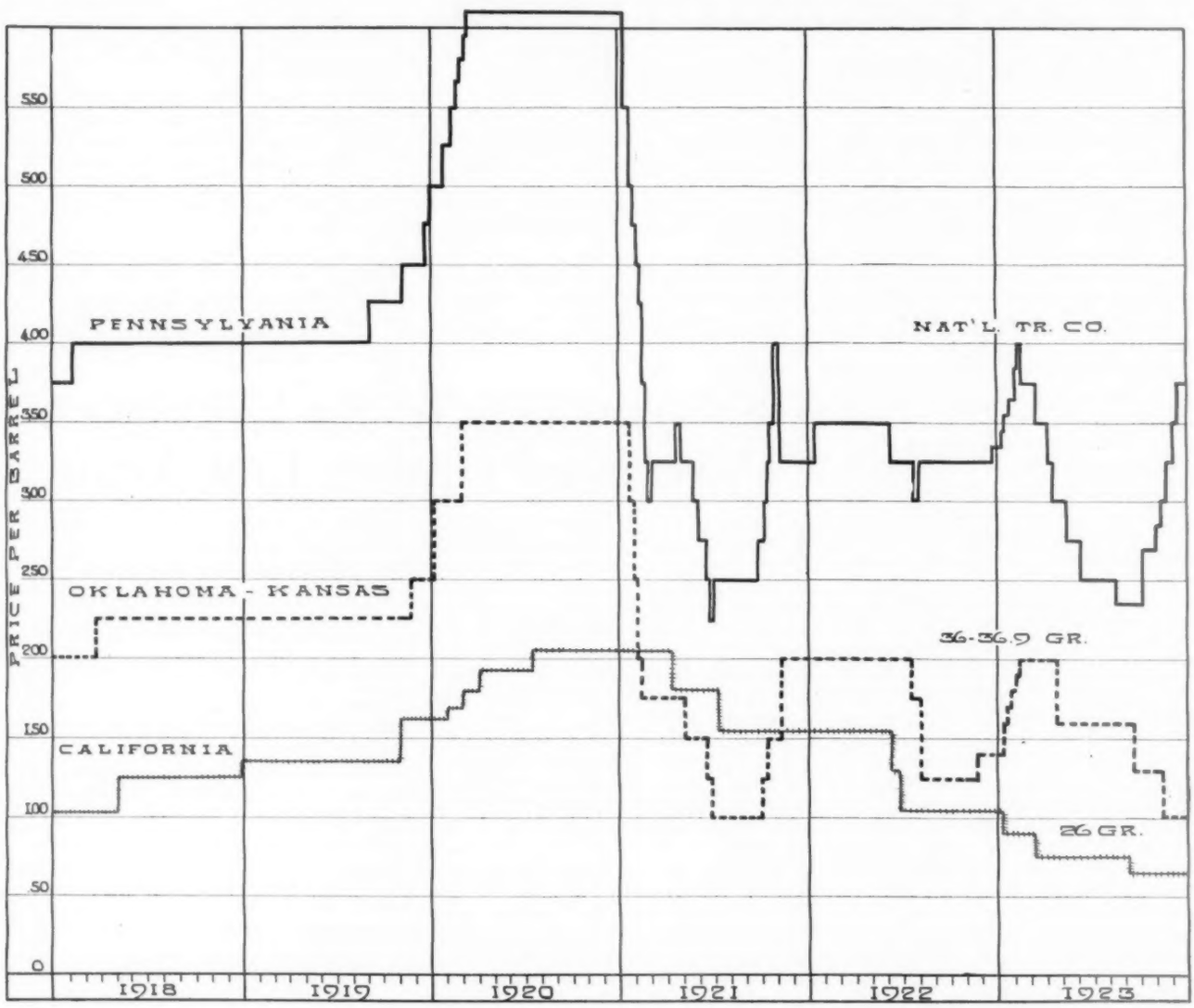


FIGURE 1—*Trend of crude oil prices*

and Trend of Posted Prices Since 1918

April 22—Urania, Louisiana, crude increased 10 cents.

April 26—Illinois, Princeton, Lima-Indiana and Western Kentucky crudes advanced 15 cents; Wooster grade, 13 cents. Canadian crude advanced 15 cents. Garber, Tonkawa, Lovell, Billings, Watchorn and Thomas, Oklahoma, crudes advanced 20 cents by Champlin Refining Company, independent of others.

May 1—Lea County, New Mexico, crude posted at 65 cents by The Texas Company, placing it in same class as West Texas grades.

May 20 — Mid-Continent crudes, all grades, advanced from 24 to 41 cents a barrel.

Markham, Texas, crude advanced 10 cents.

May 21—Elk Basin and Grass Creek, Wyoming, crudes advanced 29 cents; Lance Creek 30 cents; Rock Creek 22 cents; Big Muddy 15 cents; Mule Creek 10 cents.

Illinois, Princeton, Lima-Indiana, Wooster and Western Kentucky crudes advanced 15 cents; Plymouth 10 cents.

Canadian crudes advanced 15 cents.

Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran, Nocona, Gray County, Wheeler County, Carson and Hutchinson Counties, Crane, Upton, Crockett, Winkler, Howard, Pecos Counties, Texas, and Lea County, New Mexico, crudes advanced by Humble Oil & Refining Company. Advances were also posted on all grades of Gulf Coast crude as well as Mirando and Salt Flat, in Southwest Texas. These advances ranged from 10 to 41 cents a barrel.

May 22 — Pine Island, Haynesville, Bull, Bayou, Louisiana, crudes, and El Dorado, Arkansas, light crude advanced. Increases were also posted for Cotton Valley, Louisiana, and Smackover, Arkansas.

May 24—Sunburst, Montana, crude advanced 10 cents. Lost Soldier, Wyoming, advanced 10 cents.

May 29—Bellevue, Louisiana, crude advanced 10 cents.

July 16—Pennsylvania crudes reduced from 25 to 35 cents.

August 1—Pennsylvania grade crudes reduced 25 cents.

August 16—Pennsylvania grade crudes reduced 25 cents. Buckeye, Ohio, crude reduced 30 cents.

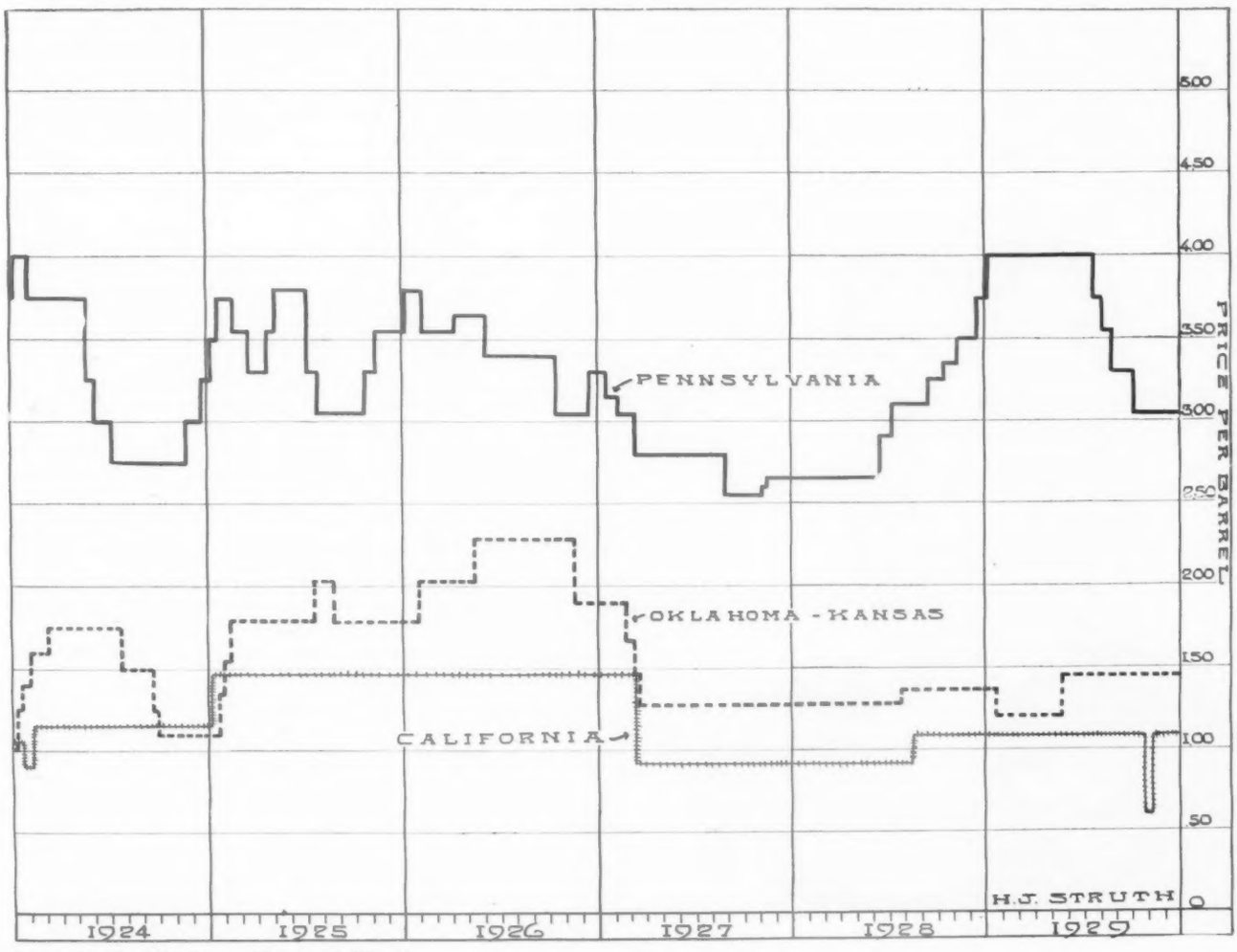
October 19—Santa Fe Springs, Signal Hill and Seal Beach, California, crudes reduced approximately 50 per cent. New prices range from 40 to 60 cents a barrel.

October 22—Ventura Avenue crude reduced on same basis as Signal Hill; new prices ranging from 40 to 60 cents.

November 8—Santa Fe Springs, Signal Hill, Seal Beach and Ventura Avenue, California, crude prices restored to former levels, as a result of success in curtailing excessive production.

November 26—Howard and Glasscock Counties, Texas, crude reduced, establishing a new classification for that section of West Texas. New prices range from 70 cents to $1.00 a barrel.

December 7—Corning grade, Ohio, crude reduced 10 cents.



Pennsylvania, Oklahoma, Kansas California

Leigh Starts Second Leg of World-wide Oil Survey

ROY E. LEIGH, associate editor of THE OIL WEEKLY, sailed from New York January 18, for London, from where he will start on a survey of the oil fields of the Old World, covering producing areas in Europe, Asia, Africa, Sumatra, Java, Borneo and Ceram, and concluding the trip by covering the oil fields of Japan.

Early in 1929, THE OIL WEEKLY undertook the presentation of facts, statistics and articles covering activities in oil fields throughout the world, for the benefit of operators as well as manufacturers of oil field equipment. Roy E. Leigh was chosen by THE OIL WEEKLY as foreign staff correspondent and associate editor, for the consummation of this project.

Mr. Leigh's active association with the oil industry dates back to before the World War, when he was associated with The Texas Company under the able tutelage of Judge William D. Bates. After a brief period spent with the expeditionary forces in France, Mr. Leigh returned to the United States and again served the oil industry with the Louisiana Oil Refining Corporation and associated interests, at Fort Worth, Texas, and Shreveport, Louisiana, where he obtained intimate, first-hand information in all phases of the producing branch of the industry—scouting, construction, drilling, pipe line and marine transport, warehousing, statistics, appraisals, budgets, forecasts, estimates and the like. In 1926 he came in contact with foreign operations in his capacity as secretary and assistant treasurer of Trinidad Oilfields Company, Ltd., Trinidad, British West Indies.

ROY E. LEIGH,
Associate Editor THE OIL WEEKLY

During 1929 Mr. Leigh completed the first leg of the projected world-wide survey, covering every oil field in South America, employing every known means of transportation from the burro to the airplane, gathering material for articles which were published regularly in THE OIL WEEKLY, and in the Special South American Issue, published December 13, 1929. These several articles covered material gathered in Argentina, Trinidad, Uruguay, Bolivia, Peru, Ecuador, Colombia, Brazil and Venezuela.

On arriving in London, Mr. Leigh will make final preparations for his survey of Old World oil fields. Special arrangements have been made with the Soviet government which will enable him to cover the important developments at Baku, Maikop and Emba.

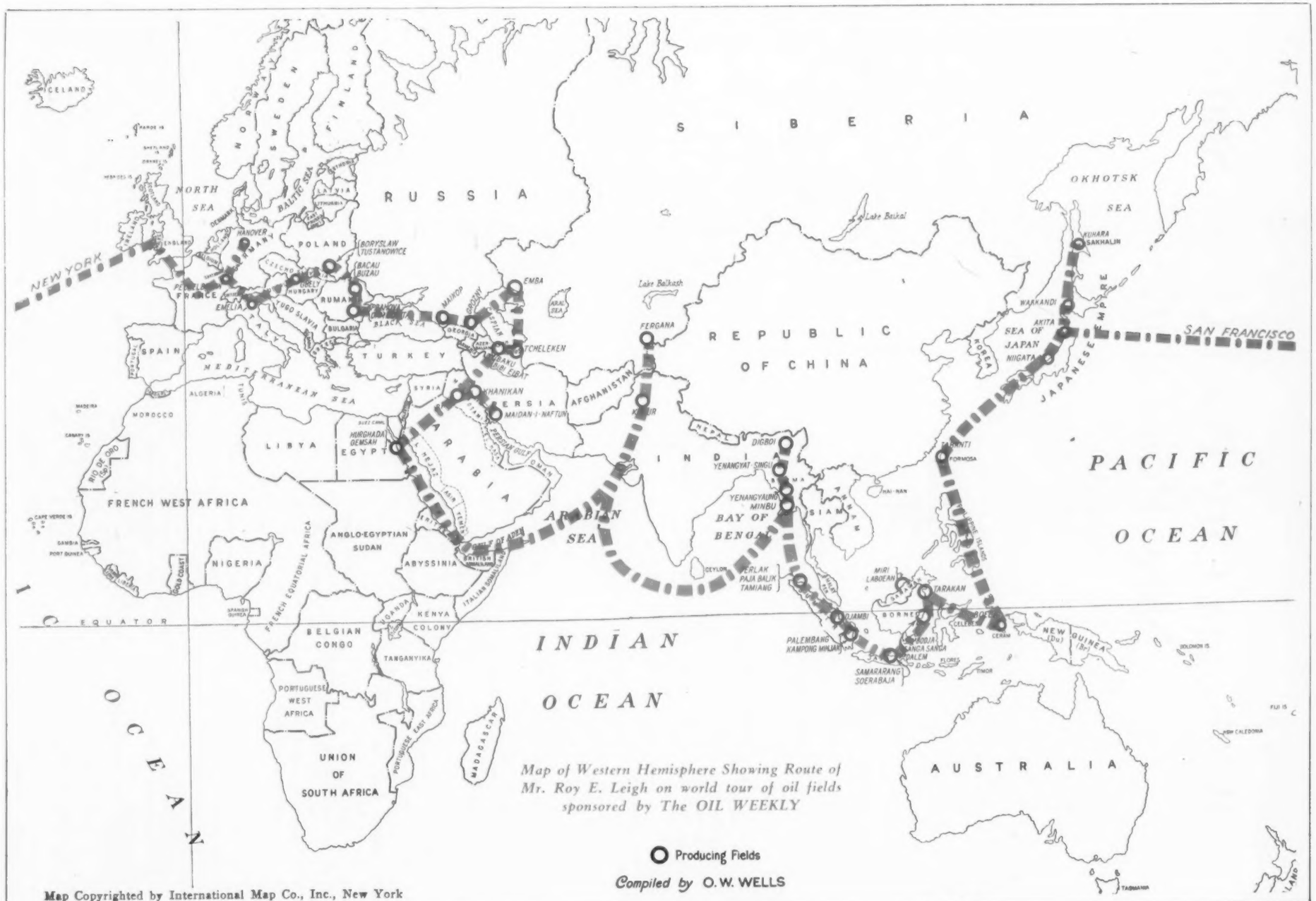
From London he will journey to Paris, where final arrangements will be consummated for visiting the fields in French Indo-China, including those at Digboi, Yenangyat-Singu, Yenangyaung, Minbu and Burma.

From Paris he will go to Germany, where he will survey the fields at Hanover and Pechelbronn, thence to Italy to study the operations at Emelia; thence to Czecho-Slovakia to study the Gbely oil field; to Poland where the Boryslaw, Tustanowice fields will be visited; thence to Roumania; into Russia to cover operations in Soviet fields; to Persia, where the Bibi Eibat, Khanikan and Maidan-I-Naftun fields will be studied; on to Mesopotamia to the Iraq field will be covered; thence to Egypt to analyze the operations in the Hurghada Gemsah oil field, whence he will sail for India.

Crossing India, Mr. Leigh will penetrate into Siberia, reaching the Fergana development northeast of the Afghanistan border, double back into India to visit the field at Khaur; then sail around India into the Bay of Bengal, whence he will cover the fields in French Indo-China.

Leaving Indo-China, he will set sail for Sumatra, where he will cover the fields at Perlak, Paja Balik, Tamiang, Djambi, Palembang and Kampong Minjak; cross over to Java to visit the developments at Samararang and Soerabaja; from there to the Island of Borneo to visit the fields at Dalem, Sanga Sanga, Sambodja, Tarakan and Miri Laboean; then crossing over to the Island of Ceram of the East Indies group, he will gather material on fields there, then leave for the Philippine Islands, whence he will sail for the Island of Formosa to analyze the oil field developments in the Tabanti field. From this point Mr. Leigh will continue to Japan, there to cover operations at Niigata, Akita, Wakkandi, Kuhara and Sakhalin, completing the world tour, and returning to the United States by way of San Francisco.

From time to time during the duration of this world-wide survey, Mr. Leigh will furnish articles on the technical and specialized branches of the industry as practiced in foreign lands. His experience as an operating executive of an integrated oil company makes possible an unusual penetration and understanding; and his association in foreign lands aids him in securing accurate information from widely separated sources. All this with his accumulated store of facts concerning marketing, refining, purchasing, producing and accounting, enables Mr. Leigh to present conditions abroad in such a manner as to be easily and readily digested by readers.



Map of Western Hemisphere Showing Route of Mr. Roy E. Leigh on world tour of oil fields sponsored by The OIL WEEKLY

O Producing Fields

Compiled by O. W. WELLS

Map Copyrighted by International Map Co., Inc., New York

Oklahoma City Pool Gives State New Possibilities

By WARREN BAKER
Staff Representative

THE oustanding field in Oklahoma during 1929 was the Oklahoma City pool, in Oklahoma County, central part of the state. This field, the deepest producing area in the state, and among the few fields located west of the meridian, saw the completion of the largest wells in the history of the state, resulting in a rapidly mounting potential output that had passed 400,000 barrels daily at the end of the year. This potential came from only 61 completions, or an average of approximately 7000 barrels per well, the highest average ever reached by any field in Oklahoma.

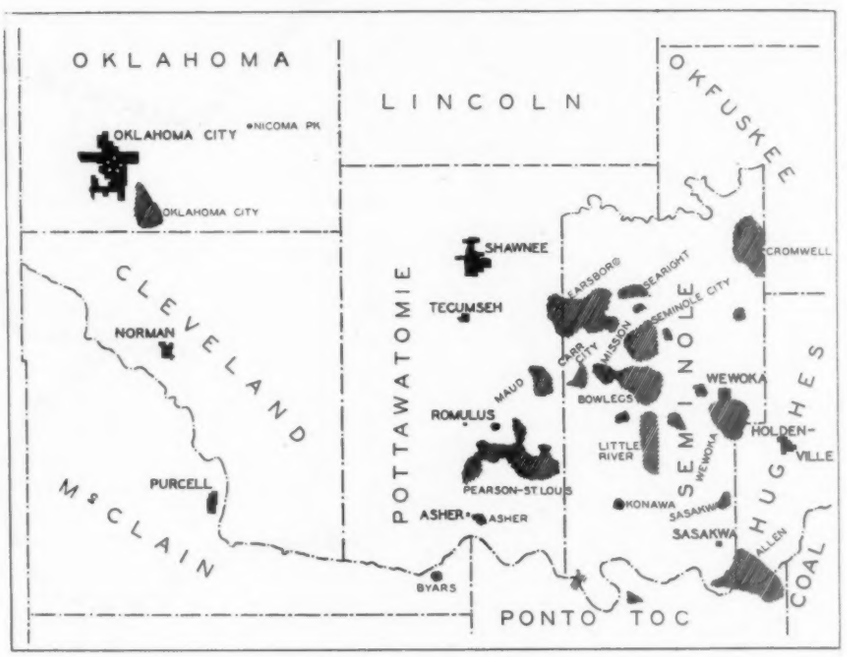
These factors, combined with the spreading of the producing area, easily stamped the pool as the most important development during the year. It ranks as the largest single pool ever found in the state, eclipsing any individual field in the combined Greater Seminole area.

Oklahoma City has also opened a new era in the state—one of deeper drilling and a westward movement. The producing horizon is the Arbuckle limestone, found here at 6500 feet. The Siliceous lime, a member of the Arbuckle series, has produced oil before, but in smaller amounts.

The highest daily peak output of the field was slightly in excess of 121,000 barrels. When production reached 100,000 barrels it was pinched 50 per cent, and all new wells were required to shut in for 30 days before entering the 50 per cent proration plan. Pipe line outlets were inadequate to care for the recovery and indications are that the field will be seriously handicaped by facilities during its high output period, and that its actual daily recovery may never exceed to a large extent its already established peak.

At the end of the year the producing area of the field had been proven a length of over four miles running slightly southeast by northwest, with a width of two and one-half miles. It was undefined at that time in all directions, although the southwest and direct east edges of the field appeared to be close at hand.

The sand zone now promises to become the most important producing stratum in the field, since the intrusion of water late in the year was causing a rapid decline in the output of the producers finding their oil source in the Arbuckle limestone.



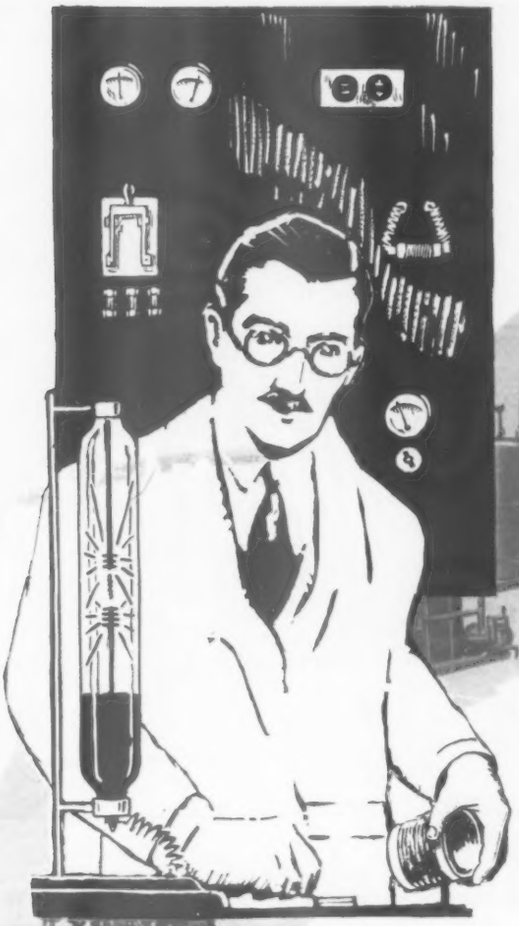
Fields in Central Oklahoma

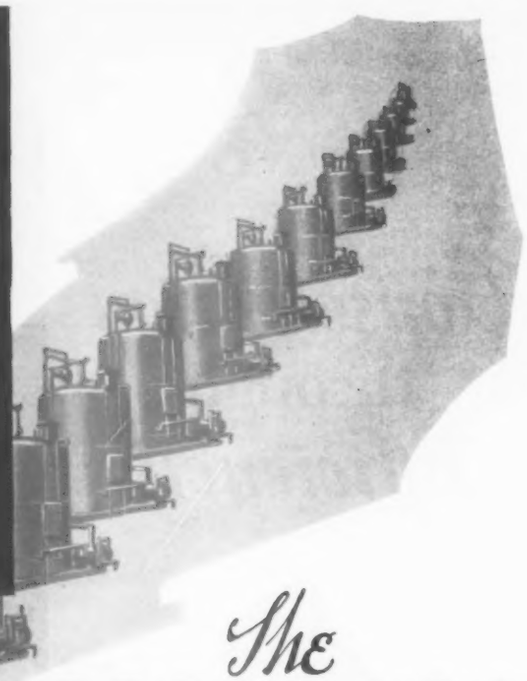
The southeast and north areas were the most active and promising at the close of 1929. Many tests were starting work in both areas. To the southeast interest was increased by Skelly Oil Company's Hoopes 1, NWc NE Section 31-11-2w, after the producing area had been found by a Detrital sand zone producer in the north offset. Skelly Oil Company's well produced 32,000 barrels when completed during December. It is the largest Detrital sand well in the field.

Wirt Franklin Oil Company's Lowery 2, SE NW NW Section 12-11-3w, shortly after the middle of the year, gave the pool a big north extension that is now threatening to carry into town lots. It came in for 12,000 barrels from the Detrital sand. Later it was deepened and increased its output to 16,000 barrels daily. No other completions have been made in this far north end of the field.

Interest had been high in the Oklahoma City area for some months previous to discovery in December 1928 as a result of the excellent possibilities that Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's Fee 1, C SE SE Section 24-11-3w, was believed to have. On the topping of a lime formation, believed then to be the Hunton lime, everything seemed to be in order for a good well. Closer study of the formation proved that it was a conglomerate lime, probably the Arbuckle, which meant that the Simpson and Wilcox sands were missed. The well blew in on December 4, 1928, for 5000 barrels and later increased to 6700 barrels when deepened. It established a producing record for steady maintenance of big production, until March 1929, when its pressure declined and water broke in. Hopes of a big field at Oklahoma City seemed to be slipping, but despite the water intrusion the well continued to produce a large amount of oil.

The second completion opened things up. It was Sinclair Oil & Gas Company's Stamper 1, NEc SW NW Section 30-11-2w, one-half mile east and south of the discovery well. The top of the Arbuckle lime was at 6340 feet and it had a total depth of 6465 feet. The initial output was 2400 barrels. It soon became a large water producer and again things did not look any too good for the pool. The well was later

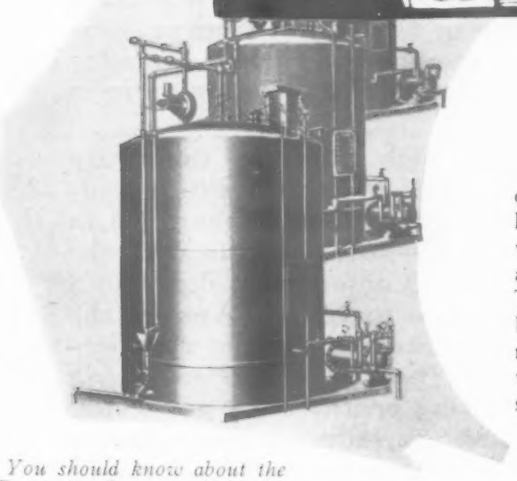




The OFFICIAL OIL DOCTOR *says—*

A large percentage of crude oil emulsions will not yield to heat below the boiling point of water, even when such heat is applied for an extended time. The high temperatures required by heating methods of treatment, therefore, are extremely wasteful, not only in fuel consumption and high labor and maintenance charges, but in losses through evaporation.

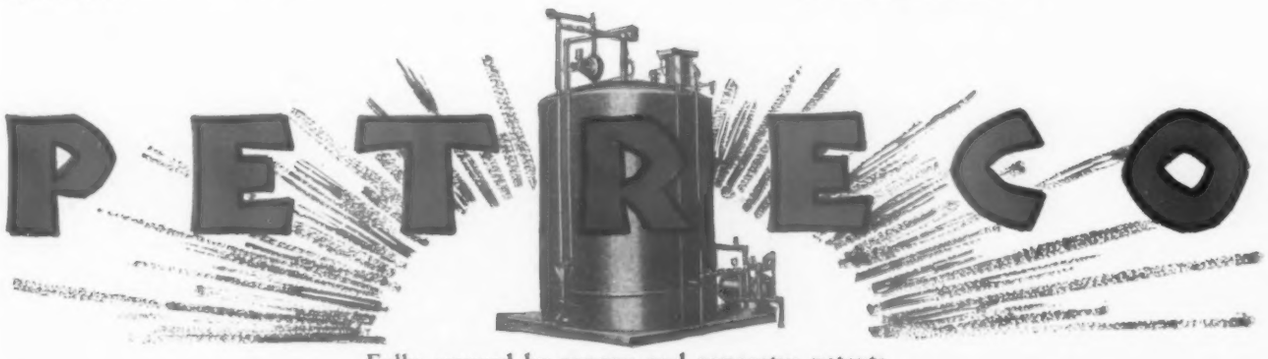
"Petreco" electrical dehydration does not crack the oil, but conserves the lighter volatiles to a high degree. Operating and maintenance costs are extremely low per barrel of cleaned oil. Attendance is practically nil.



You should know about the "Petreco" Process for the Electrical Dehydration of Crude Oil Emulsions. Ask for our latest booklet giving complete data.

PETROLEUM RECTIFYING COMPANY of CALIFORNIA

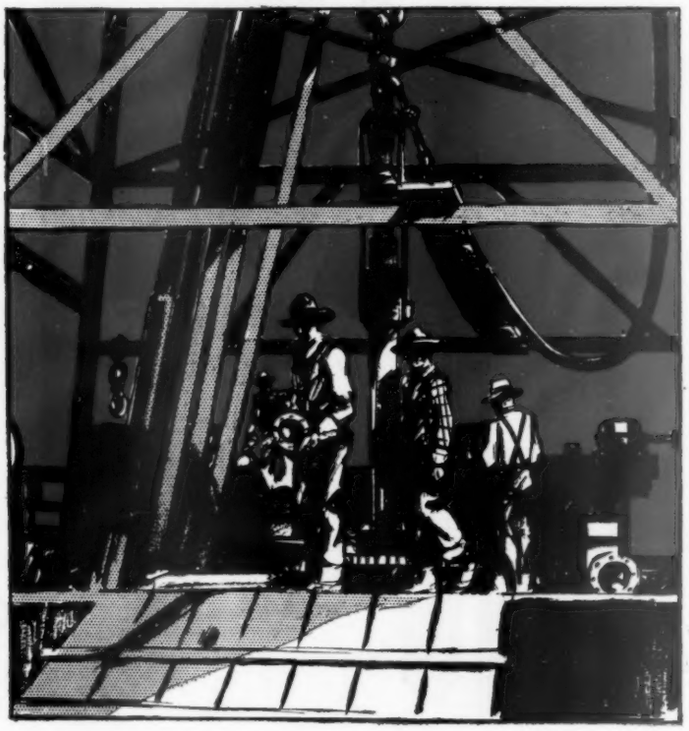
Security Title Insurance Bldg. Los Angeles, Calif.
530 West 6th Street.
Petroleum Bldg. Houston, Texas



Fully covered by process and apparatus patents.

[THE FIFTH OF A SERIES OF EIGHT AD-ITORIALS ON OIL]

Conservation through *Efficiency*



IN 70 years the American oil industry has grown from a single well 69 feet deep, producing a few barrels of oil a day, to an Eleven Billion Dollar Industry in which more than 1,250,000 people are actively engaged. More than 330 refineries, with a capacity of 3,000,000 barrels of crude oil have been built for the manufacture of finished products for the public use.

Petroleum engineering has introduced modern practices which make the methods Drake used in drilling seem puny in comparison. This efficiency in adapting scientific methods to both producing and refining is reflected in the prices of gasoline and fuel oil. While the index of prices in other commodities shows an average increase of 50 per cent from pre-war levels, gasoline and fuel oil are today at practically the same price as in 1913.

Out of high regard for their duty to the public and the industry, leading oil men are actively engaged in finding ways to co-operate with the Federal Oil Conservation Board in a conservation program. Among the important subjects under consideration are: field co-operation among neighboring operators in preserving back pressure, reducing the gas factor and building up pressure by artificial means.

A Nation fares well where leaders in its great industries have such a broad-gaged vision.

The FIRST NATIONAL BANK
1ST IN HOUSTON
HOUSTON · · · TEXAS

carried much deeper with breaks of new oil producing strata being found that kept it yielding much oil, at times as much as 5000 barrels per day.

In June, 1929, Coline Oil Company's Olds 1, C SE NW Section 24-11-3w, one location west of production was completed for 4073 barrels at 6311 feet, but instead of producing from the regular lime pay it was producing from a sand. The producing horizon was at first thought to be the Wilcox sand, but it was determined that it was a mixture of Simpson, Wilcox, Viola, Sylvan and Hunton, and it became known as the Detrital sand or Detrital zone. The mixture of the formations was probably due to the disturbance brought about at the time that the Arbuckle limestone formation rose so high on top of the structure, pushing the upper formations, named above, off to the side of the structure.

Subsequent development resulted in finding that the Detrital zone was to be found on the flank of the structure, similar to the condition found several years ago at Garber, Oklahoma. At the end of the year production had been located in the sand horizon on the north, west, southwest and southeast sides of the lime producing horizon, leaving the lime producing region defined in all directions except to the east and northeast.

Several wells completed in the pool broke all producing records for individual wells in the state. The previous record had been 27,000 barrels in the old Garber field. The largest producer found in the field was Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's Thomas Fuzzell 1, SWc SE SE Section 13-11-3w, which produced 42,983 barrels the first 24 hours from the Arbuckle formation. This well also ranked among the largest high gravity oil producers ever drilled in the world. The southwest offset, Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's Fortson-Farley 2, lacked only 500 barrels of reaching the same figure. Several wells were completed for around 30,000 to 35,000 barrels per day.

Second

A second producing region in the Oklahoma City area was opened in September. The new area was 11 miles east of the Oklahoma City field and became known as the Trosper pool, since it was drilled on Trosper acreage. Others called it the Nicoma Park field, since it is located at that place.

The discovery well was a Mid-Kansas Oil & Gas Company and Ramsey Petroleum Company's test in NE NE NW Section 19-12-1w. The well made 650 barrels the first 24 hours and settled off to around 325 barrels daily. The Wilcox sand was at 6904 feet and it plugged back to test sand at 6157-65 feet, where it found the production. Since the above two companies owned the acreage in the vicinity there was no big drilling campaign.

Several other wildcats in the Oklahoma City area showed during the year but no other producer was completed.

Seminole Area Pools

Ranking second to the Oklahoma City field in importance was the Greater Seminole region where several new pools and extensions were opened, that kept production around 300,000 barrels or higher daily, despite curtailment of production. Among the new pools were East Earlsboro, Earlsboro townsite, St. Louis-Pearson extensions, Konawa, Sasakwa-Allen, Asher, and development in the Mission, Carr City, Maud, East Little River, East Seminole City and other areas.

Earlsboro Pool

The most important producing area in the Greater Seminole district was the Earlsboro field, with two spots commanding interest, namely, East Earlsboro and Earlsboro townsite.

The East Earlsboro pool was the most important of these running second to Oklahoma City in potential and actual recovery. At the end of the year potential production was over 100,000 barrels per day. Actual production was running around 60,000 barrels from 110 wells, while prorated 40 per cent. The field seems pretty well defined and promised to slip from the picture very quietly after the present drilling development is completed.

The discovery well of the East Earlsboro field was Magnolia Petroleum Company's Anderson 1, NE NW SE Section 18-9-6, more than one and one-quarter miles east and slightly south of the old Earlsboro pool. This well swabbed 600 barrels in 24 hours from the Wilcox sand at 4370 feet. Subsequent development commenced slowly, but with the bringing in of several wells making from 4000 to 7000 barrels the activity increased.

Development covered Sections 18, 19, 20, part of 17, all in Township 9-6, and across the township line to the southwest, Section 24-9-5.

The Earlsboro townsite development did not start until the latter part of the year when production was found immediately north of the city limits and gradually crawled southward, until several locations were made on the townsite lots. At first the city commission limited drilling to one well per block, but this ordinance has been recalled and drilling promises to reach every lot, if but a few additional wells to encourage work can be found. Only one well has been finished on the townsite and it proved a good one.

St. Louis-Pearson Area

The St. Louis-Pearson region in Pottawatomie County was the scene of development that for a time appeared to indicate big things, but the result was not so important as expected. The Hunton lime, Simpson and Wilcox sands played the role of the producing horizon. The first strike after the opening of 1929 was T. B. Slick's Davis 1, NEc W½ NE Section 18-7-5, due north of the first Wilcox sand production at St. Louis. This well flowed 200 barrels per hour from the Wilcox sand at 4102-18 feet. This completion jumped St. Louis' production to 137,311 barrels, a new high record. Although some good wells were found in the new territory, the producing area proved to be small and water soon took its toll, resulting in the development ending.

Next came Darby Petroleum Company's Youngblood 1, SEc NW Section 16-7-4, midway between the Pearson and St. Louis pools, with an initial flow of 742 barrels from the Hunton lime. Although it resulted in but little excitement it caused development to swing in that direction, where many producers were later found.

Early in April, the Magnolia Petroleum Company drilled in Latimer 1, SEc SW NW Section 17-7-4, one-half mile north of Pearson and two and one-half miles west of the St. Louis. This well made 1700 barrels per day from the Simpson sand at 4365-4405 feet and really opened the area for exploration.

An important extension was tacked onto the growing area very shortly when one mile north of the original east boundary of St. Louis proper, Martin & Irwin, Keistler & Manning, Sinclair Oil & Gas Company, McGraw Oil Company and Shaffer Oil & Refining Company completed Kelly 1, SEc NE NE Section 2-7-4, which found 100 barrels per hour in the Hunton lime at 3750-75 feet. Active development resulted, but from a general standpoint the new sector proved a disappointment. Later Simpson sand production was found but it also was small.

About the time the Kelly north extension well in Section 2-7-4, came in, Independent Oil & Gas Company and Westland Oil Company's Rhodd 1, NWc Section 16-7-4, produced 3710 barrels from the Simpson sand. This well connected all of the St. Louis-Pearson areas and big development came at once.

In September, interest jumped temporarily to the far west side of the region, where Amerada Petroleum Corporation and Indian Territory Illuminating Oil Company's Vineyard 1, NWc NE NE Section 15-7-3, three miles northwest of Pearson Switch, produced more than 300 barrels from the Hunton lime at 4350-83 feet. It was later drilled to the Wilcox sand but found water, plugging back to the Hunton.

Near the close of the year another north extension was made. This one was on the western edge of the St. Louis-Pearson district. Wofford Drilling Company, Atlantic Oil Producing Company and R. A. Irwin's Morgan 1, NE NW SE Section 4-7-4, made 1500 barrels from the Hunton lime topped at 3750 feet. A number of locations were started in the vicinity, which was one and one-half miles north of production. Despite the big production, owners of the well decided to drill it deeper and test out the Wilcox sand, which horizon had not been reached at the close of the year.

Konawa Field

The new Konawa, or Harris field, near Konawa, southeastern Seminole County, was the latest discovery in the

Greater Seminole district. It had three producers with a combined output of 3000 barrels, and nearly 30 operations, and new completions anticipated at once. The producing horizon is the Cromwell sand at 2850 feet.

This pool was found by E. L. Harris, H. F. Wilcox Oil & Gas Company and Droppleman Drilling Company's Harjoche 1, SE NE SE Section 8-6-6, after it had been plugged back from a hole full of water in the Wilcox sand and the pipe ripped at 2950 feet to test a showing found while drilling to the Wilcox sand. This was in November. The well made about 250 barrels, with additional ripping later increasing it to 500 barrels. It created but mild interest due to the smallness of production.

The second completion was the same companies' Harjoche 2, south offset to the discovery well, which produced 1935 barrels initial. Owners of acreage in the vicinity commenced at once the active campaign for the shallow production, and quick development is assured because of the shallow depth.

Sasakwa-Allen Field

The Allen area continued to be a scene of activity during 1929. The discovery of Wilcox sand production encouraged operators to seek this horizon. On the west side of the field considerable activity took place in a new Wilcox sand producing area, but it never had indications of threatening the market.

At the start of the year Wilcox sand activity was confined to Sections 23 and 24, Township 5n-7e, but in July, Blackwell Oil & Gas Company's Fleet 2, SE SW NW Section 13-5-7, opened another area and one that proved iself more prolific than the former.

Of interest was the finding of a new field between Wewoka and Allen that became known as the Sasakwa pool. It was found productive in the Wilcox sand the last part of June, 1929, after shallower production had been found in 1928. The Wilcox sand discovery well was Sinclair Oil & Gas Company's Davis 2-A, SW NW SE Section 7-6-8. This well produced 4000 barrels per day.

Shortly afterwards the area was extended to the southwest by Signal Oil Company and Pure Oil Company's Bond 1, SWc NE Section 13-6-7, one mile southwest of production. The well made 60 barrels per hour from the Wilcox sand at 4162-62½ feet.

Other completions that followed outlined the field between the two discovery wells with most of any extensions being to the north. Considerable development was going on in the region at the close of the year, but it seemed out of the limelight as far as anything big might be expected.

Asher Field

The Asher field, south of Pearson Switch, while it performed according to early predictions, fell below indications it gave out at first. Some rated it a possible major pool, but like all Viola lime fields the output soon declined and the area was small.

The discovery well was Simms Petroleum Company et al's Laster 1, SEc NE NE Section 19-6-4e, which produced 3100 barrels from the Viola lime at 3640-85 feet.

A big development started but many of the wells were failures. Interest was revived from time to time by the bringing in of large wells but the field seemed unable to get started right. Some production was found on the townsite after a bad start, but the area never yielded big production.

Other Seminole Pools

The Greater Seminole area was given a southwest extension just before the ending of the year, when Homaokla Oil Company and Sunray Oil Company brought in a small well in SEc NE NE Section 16-5n-3e, about seven miles from Asher. The well was good for 100 barrels from the Viola lime at 3582-3607 feet.

Early in February, the Mission field was a center of interest as operators prepared to drill in more than 60 tests after waiting more than a year for that privilege. Within 48 hours after the lifting of restrictions there were 35 completions. Production increased to 50,000 barrels per day but could not muster enough force to go beyond that point and soon commenced to slip off.

There was little spectacular activity in the Carr City field, lying between Mission and Maud. This field was found in 1928 by Barnsdall Corporation's Fife 1, Section 14-8-5, which remained shut in for a long time. The producing area covered several sections.

The Maud field to the west had a large producing area and was active for some time during the earlier part of the year. It recovered its oil from the Hunton and Misener sands and showed little resistive powers. A feature of the development was Gypsy Oil Company's Miller 3, SEc NE SE Section 18-8-5, which made as high as 900 barrels per hour before it broke the connections. When brought under control it produced 8367 barrels, and like other Misener sand wells continued to drop quickly. This is the largest producing well ever drilled in from this formation.

The East Little River field opened new territory and kept up an average of 25,000 barrels per day during the latter part of the year. The new territory was adjoining the early field to the east and running slightly south. Some shallow production was found late in the year and several wells were being completed in the Cromwell horizon as a result.

The East Seminole City field was little active and proved to be only a very small producing spot. Production reached 5000 barrels per day.

McCully Field

The McCully field of Logan County, the first pool in the state to produce from below 6000 feet, continued development that improved its western and southwestern outlook. The pool was limited to the north and northeast during the year.

In June the field's largest well was completed when Shell Petroleum Corporation's McCully 8, SE SW SE Section 30-19-4w, produced 6833 barrels in 24 hours from the Wilcox sand at 6016-37 feet.

The last of July saw J. S. Cosden & Company's Gardner 1, NE NE NW Section 31-19-4w, on the extreme southern edge of the pool, complete a fishing job and come in for 180 barrels per hour from the Wilcox sand and later increased to 255 barrels per hour. Several tests were completed immediately adjoining the extension well, but they were not nearly so large.

Miscellaneous Results

The first deep producer in the Perry area of Noble County, was Magnolia Petroleum Company's Tom Young 1, NE NW NW Section 22-21-1w, that produced 20 barrels per hour from the Misener sand at 5100-04 feet.

In the same area, Peerless Oil Producing Company, Prairie Oil & Gas Company, Keith and Earl Miller's Wentz 1, NW SW Section 22-22-1e was a small producer from the Layton sand at 3282-85 feet.

A new chat pool was opened in the Wildhorse area of southern Osage County when Mid-Co Petroleum Company's No. 18, SW NE Section 18-22-10e, six miles southeast of Hominey, made 250 barrels after a 20-quart shot from 1936 feet.

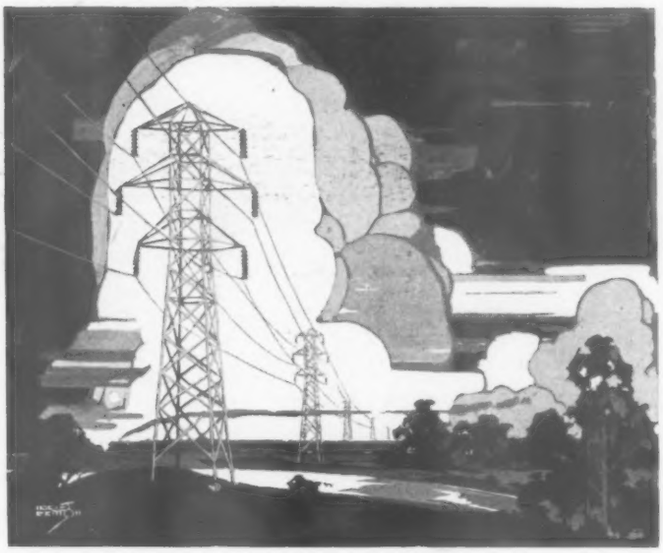
The most important discovery of southern Oklahoma was Wirt Franklin Oil Corporation's Spain 1, SW SE NW Section 9-2s-6w, 13 miles southeast of Duncan in Stephens County, which opened the Palacine field. The well gauged 750 barrels from sand at 3225-34 feet. A second producer was completed before the end of the year by Wirt Franklin that made 921 barrels from 3164-90 feet.

Adjoining the town of Chandler on the west, Magnolia Petroleum Company completed a producer on the Decker farm, SEc SW SE Section 8-14-4e, which opened a new Simpson sand field. The well produced 700 barrels but soon dropped off due to cuttings. The depth was 4553-72 feet. A second well was completed before the end of the year but it was smaller than the original test.

An interesting test of eastern Oklahoma was that of Red Bank Oil Company in SEc SW NW Section 23-9-24e, LeFlore County, which found 35,000,000 feet of gas at 5400 feet. It was drilling deeper after burning the rig.

Shaffer Oil & Refining Company's Hawk 2, NW NE Section 9-18-5e, opened a new field north of Cushing in Payne County. The well was good for 600 barrels from the Viola lime, as were several offsets.

The usual round of small discoveries in Bristow, Okmulgee and Muskogee areas constituted the work in these districts.



Carrying *Kilowatts* to *Derricks*

ROWS of towers cross the prairies like soldiers marching single file.

They march right up to your lease with electric power, ready to obey your commands. Raise your hand to touch a lever and this power instantly turns your drills, pumps your oil, lights your derricks.

Today in the Gulf Coast district, transmission towers are carrying kilowatts to derricks.

It is not surprising that modern electric power has so quickly become accepted by the oil industry. There is kinship between the two industrial giants. Both have contributed beyond measure to the unparalleled progress of this industrial age.

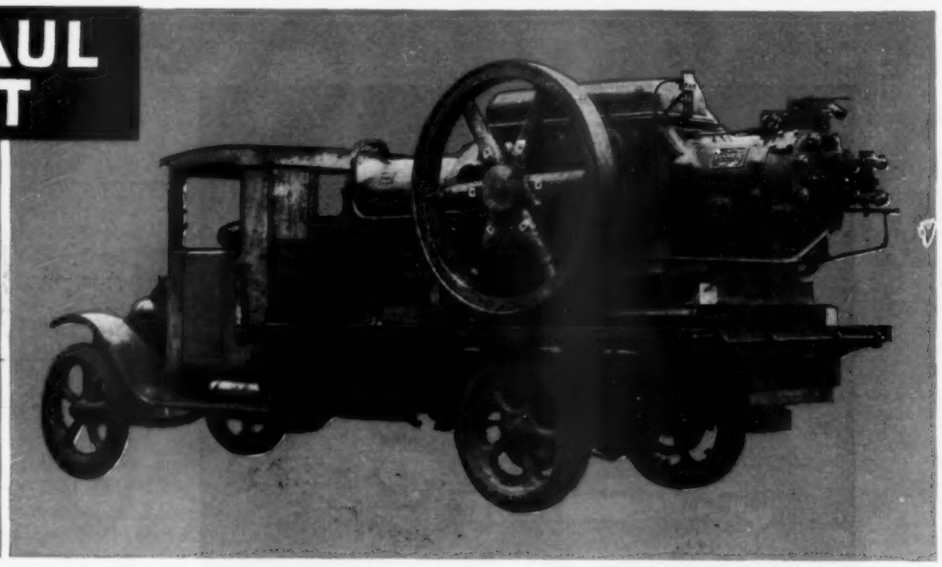
GULF STATES
UTILITIES COMPANY

Under Executive Management *of* Stone & Webster, Incorporated

General Offices

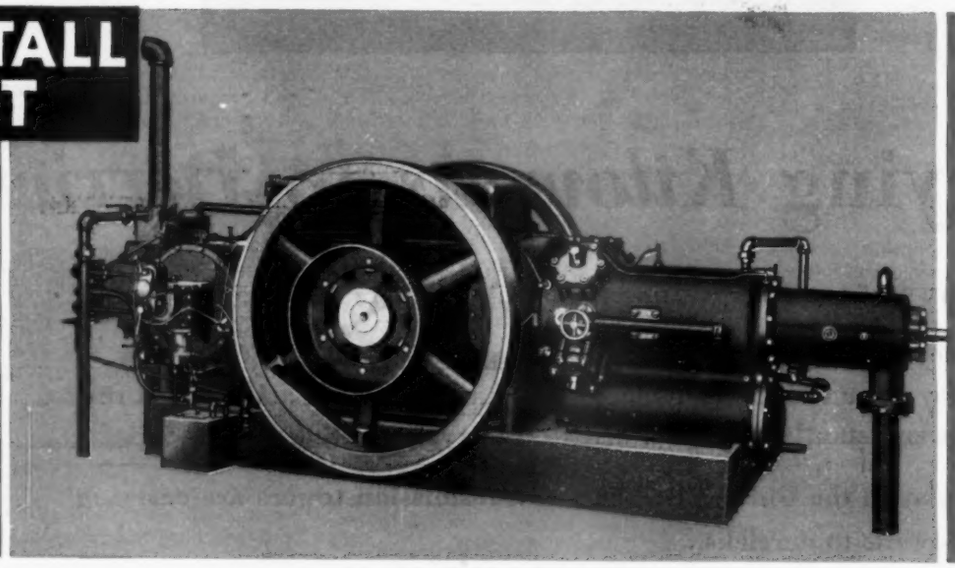
BEAUMONT, TEXAS **LAKE CHARLES, LA.**

HAUL IT



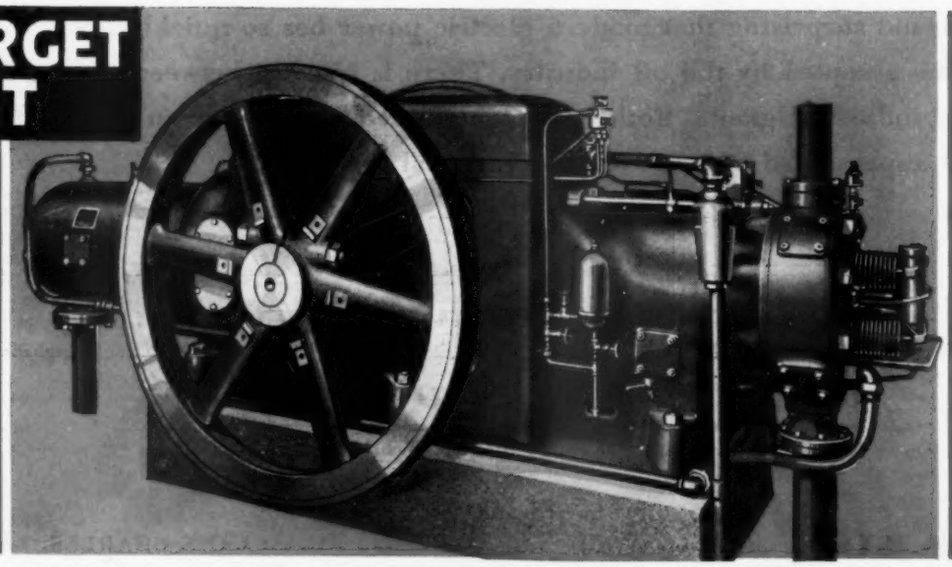
Cooper-Bessemer Type-16 (50-60 B.H.P.) engine compressor unit is portable because of its compactness and comparatively low weight. It is readily transported from location to location by truck.

INSTALL IT



Cooper-Bessemer Type-16 is ready for operation as you receive it. It comes completely assembled and requires no lining up. Because of its simple foundation and the fact that mounting requires only a few anchor bolts, the unit can be easily installed anywhere. (This view shows valve gear side with two stage tandem compressors.)

FORGET IT



Cooper-Bessemer Type-16 is designed for semi-automatic operation when equipped with several simple safety devices that shut it down when water pressure decreases, temperature increases or lubricating oil pressure decreases. Thus only a few minutes' attention is required each day. (This view shows oil filter side and single stage compressor.)

COOPER-BESSEMER

TYPE 16

GAS OR FULL DIESEL

GIVE this engine a foundation — and it makes itself equally at home in direct-driving compressors or in belt-driving electric generators for power purposes. More and more it is being put to work where larger units are not needed and in out-of-the-way spots where constant attention is not practical.

Three years of hard service—in air and gas lift, air and gas compressing, gas boosting, refining, gasoline extracting, repressuring—have demonstrated the ability of Cooper-Bessemer Type-16 to thrive on the load.

Easily adjustable, oversize Timken Roller Main Bearings—drop forged connecting rod with both bearings adjustable—drop forged main shaft—special heat-resisting valves—special alloy steel parts.

Order your Type-16 with a single or two-stage compressor cylinder for regular or semi-automatic operation—as a gas or Diesel engine. You can always convert it the other way, easily and inexpensively, right in the field. Rating is 50-60 B. H. P., depending upon the speed. *Write for new Bulletin* — TYPE-16.

THE COOPER-BESSEMER CORPORATION

Formerly The C. & G. Cooper Company and The Bessemer Gas Engine Company

Mount Vernon, Ohio Grove City, Pa.

Branches in all principal oil and gas fields

YOU'RE ALWAYS SAFE IN CHOOSING A COOPER-BESSEMER

THE TESTIMONY OF TIME

DRESSER
Couplings Dominate

1880 S. R. DRESSER MANUFACTURING CO. 1930
BRADFORD, PENNA.

New Fields Give Kansas Up-Turn In Production During 1929

By WARREN BAKER
Staff Representative

THE year 1929 was the most active one in many years for Kansas. In addition to the great amount of activity with the drill, Kansas saw its greatest field since the famous El Dorado-Towanda-Augusta fields a decade ago and as a result production of the state was at a high point.

The most concentrated activity was in the central area, where large production was found in several areas. Wildcat strikes in central and western Kansas were numerous and continually added to the growing attention paid to the state by oil men.

Central Area

In the central area, Sedgwick and McPherson Counties played the leading roles, with Sumner, Saline, Marion, Harvey, Butler and other nearby counties participating.

Sedgwick County was the most active throughout the year, but the last of the year saw McPherson County coming rapidly to the fore ground and the latter is expected to be a large factor during the early part of 1930.

Activity in Sedgwick County can be traced back to its first producer, Continental Oil Company and Gypsy Oil Company's Wright 1, which opened the Wright pool, just north of Wichita, in August, 1928. Production of this field and its north extension, known as the Valley Center pool, reached 40,000 barrels, boosting the state's production well over 100,000 barrels daily. When winter set in it became necessary to prorate production in order to keep from having a surplus output.

One hundred and eleven producers had been completed in this pool at the end of the year and a producing area covering the south half of Section 31-25-1e, the south half of Section 36-25-1w, Section 6 and 7-26-1e, and Sections 1 and 12 in Township 26-1w.

The principal part of the drilling development had been completed by the middle of the year, with the last half being devoted to completing wells in the proven area and along the west side of the field.

Valley Center townsite, where a number of tests were drilled, proved to be non-producing, except in one instance —and this small well was later abandoned.

Other Sedgwick County Developments

Foremost among the wildcat discoveries in Sedgwick County during the year was Shell Petroleum Corporation's Lygrisse 1, SEc NE Section 15-26-2e, located nine miles east of the Valley Center field. It topped the Simpson producing horizon early in March at 3164 feet and when deepened to 3167 feet commenced flowing 80 barrels per hour.

Many tests were drilled in the region and good production resulted, and a larger producing area.

A second producing sand in the field was found late in June, when Shell Petroleum Corporation's Community 1, NW SE SW Section 16-26-2e, on the Greenwich townsite, flowed 1555 barrels in 19½ hours from the Kansas chat at 2924 feet. The chat formation for a time was the center of attraction with several large wells. Throughout the year it alternated with the deeper Simpson dolomite in creating interest in the territory.

The pool proved spotted and erratic and interest fell and grew from time to time with developments throughout the year. While it ranked second to the Valley Center in the county it lacked much of being a major pool. Water intrusion hurt it to a large extent, especially the chat producing wells.

A third producing horizon was added the first of September, when John Roger et al's Johndro 1, Lot 16, Block 8, SE SW SW Section 15-26-2e, Greenwich townsite, made a 500-barrel well from the Wilcox sand at 3201-04 feet.

Very shortly after finding the Greenwich field, Dickey and Shawver and Shell Petroleum Corporation's Robbins 1, NWc SW Section 21-28-1e, a wildcat south of Wichita, encountered 200 barrels of production from chat, with production later increasing to 552 barrels when deepened.

The second completion in the Robbins pool was White Eagle Oil & Refining Company's Robbins 1, NEc SE Section 20-28-1e, a west offset to the discovery well. This well was much smaller than the discovery well. Other completions lacked the pep and production of the original well and before long the pool was confined to a very small producing area.

Several producers were completed in scattered spots in the county, but none had amounted to much at the end of the year. H. H. Patton and L. H. Wentz's Swanson 1, NWc NE Section 6-26-2e, near Greenwich, looked for a while as a good well, but water ruined it. The well swabbed 984 barrels the first 19½ hours from chat at 3005-10 feet. Shawver & Mission's Broer 1, NEc SW Section 5-26-2e, seven miles east of Valley Center, swabbed 75 barrels the first five hours from the chat, but turned out to be a small pumper. Barnsdall Corporation's Samuels 1, NEc NW Section 24-25-1e, three miles east of the Goodrich pool, swabbed 75 barrels of oil and 20 barrels of water in 12 hours and was a small well o· the pump.

The Goodrich field found late in 1928, which started out big due to the performance of the initial well, proved a fizzle, even in the lower horizons. Offsets came in for very small wells and some were dry. The discovery well, however, produced much oil.

There were other minor wildcat discoveries in the county, which warrant the continuation of the exploration of the region. Included among these were the E. W. Marland's Mackey 1, SE NW SW Section 30-27-2e, southeast of Wichita, which pumped 65 barrels of oil and 35 barrels of water from chat at 2956-2970 feet, early in September. A Wilcox sand discovery was that of Plains Oil Company's Curry 1, SE SW SW Section 2-27-1e, west of Wichita, which made a very small pumper. There were several good showings and a few other small wildcat producers, but most of them soon played.

McPherson County

The most important wildcat strikes made in the state during 1929 were in McPherson County, which area is starting off in the lead during 1930, and promises to be the best producing spot in the state at least during the first half.

The most important find here was the Voshell pool just south of McPherson. Although it was generally considered a producing district six months earlier than it actually commenced producing oil, due to the good showing in the Ted Washabaugh well that was ruined by all kinds of troubles, it was not until October that the first well started producing. Derby Oil Company's Stuckey 1, NEc SE Section 9-21-3w, one-half mile south of the hard-luck Washabaugh test, produced 1334 barrels the first 24 hours from the Wilcox sand at 3322-25 feet. It was

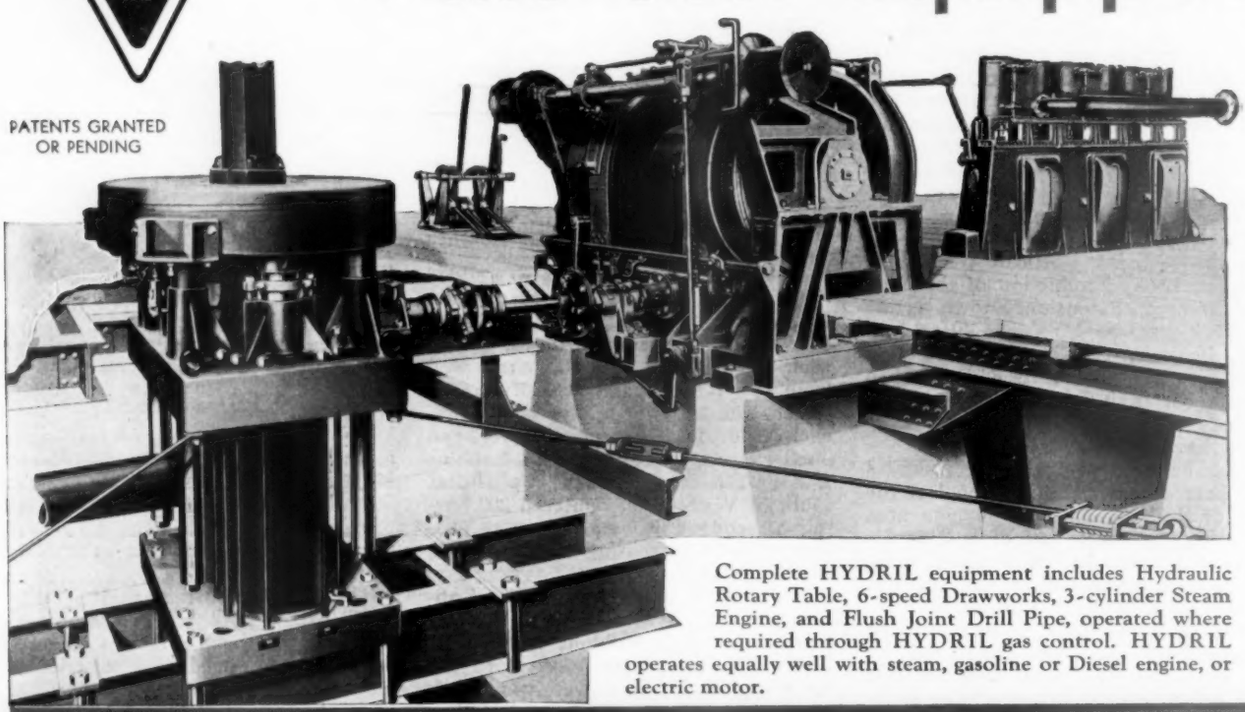
HYDRIL

BREAKS ALL SPEED RECORDS AT KETTLEMAN HILLS

the best equipped

TRADE MARK REG.
HYDRIL

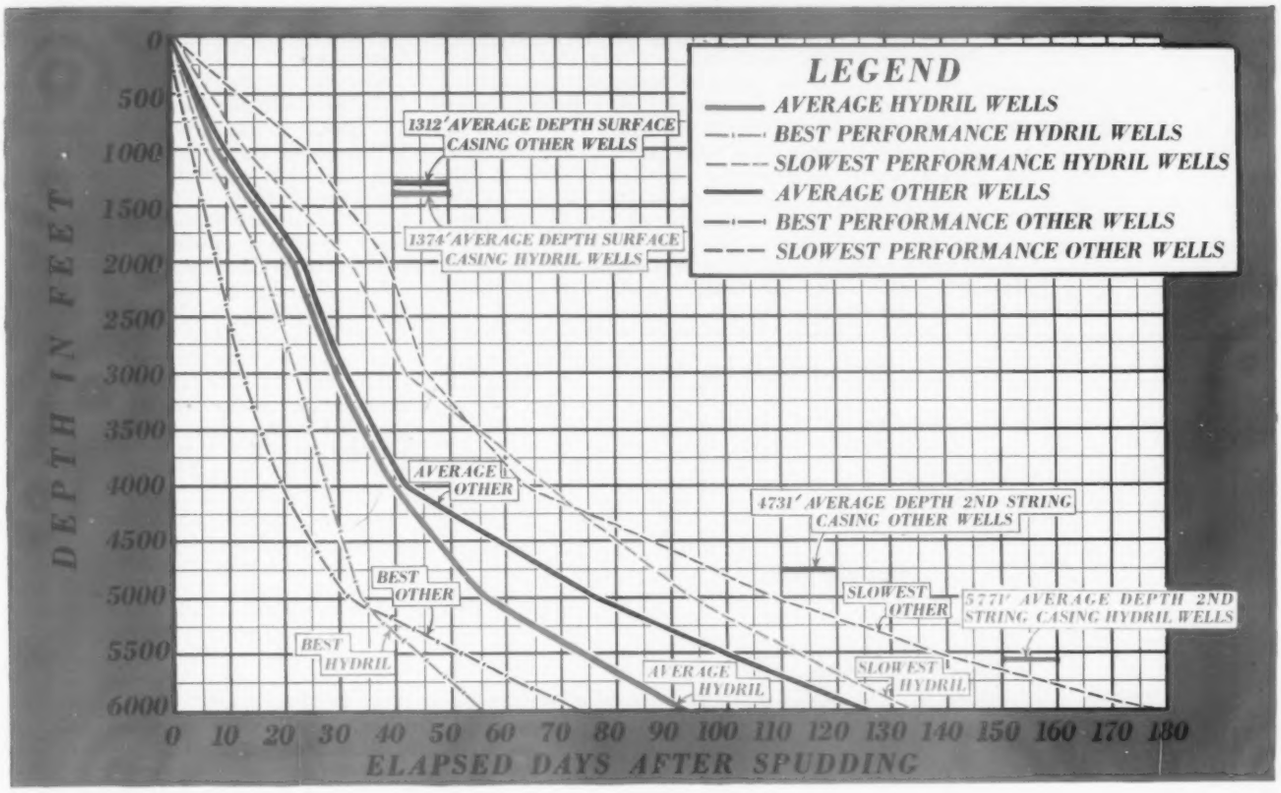
PATENTS GRANTED OR PENDING



Complete HYDRIL equipment includes Hydraulic Rotary Table, 6-speed Drawworks, 3-cylinder Steam Engine, and Flush Joint Drill Pipe, operated where required through HYDRIL gas control. HYDRIL operates equally well with steam, gasoline or Diesel engine, or electric motor.

DOHENY STONE

714 West Tenth Street, Los Angeles


LEGEND
AVERAGE HYDRIL WELLS
BEST PERFORMANCE HYDRIL WELLS
SLOWEST PERFORMANCE HYDRIL WELLS
AVERAGE OTHER WELLS
BEST PERFORMANCE OTHER WELLS
SLOWEST PERFORMANCE OTHER WELLS
1312' AVERAGE DEPTH SURFACE CASING OTHER WELLS
1374' AVERAGE DEPTH SURFACE CASING HYDRIL WELLS
4731' AVERAGE DEPTH 2ND STRING CASING OTHER WELLS
5771' AVERAGE DEPTH 2ND STRING CASING HYDRIL WELLS
AVERAGE OTHER
BEST OTHER
SLOWEST OTHER
BEST HYDRIL
AVERAGE HYDRIL
SLOWEST HYDRIL
DEPTH IN FEET
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180
ELAPSED DAYS AFTER SPUDDING

drilling field in the world!

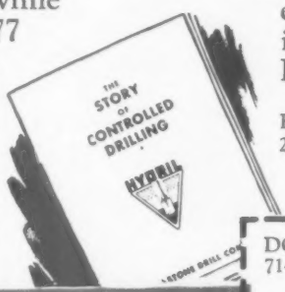
THE five wells at Kettleman Hills equipped with HYDRIL averaged 93.7 days from spudding to 6,000 feet—compared with the average of 126 days required by all the wells drilled with other equipment which have reached the 6,000-foot depth since the discovery well.

An average of 32 days less time to production worth $10,000 per day—32 days less drilling expense at $500 per day!

The *slowest* HYDRIL well required 132 days—only 6 days more than the average for wells drilled with other equipment—while the slowest other well required 177 days. The fastest HYDRIL well reached 6,000 feet in 55 days—18 days faster than the best performance with other equipment.

These figures and chart above are taken from Olsen's scouting service reports, giving the elapsed time for all wells since the discovery well at Kettleman Hills; showing comparison of the five HYDRIL wells and all wells using other drilling equipment.

Kettleman Hills wells are being drilled with rotary equipment of practically all the recognized makes, in most cases the newest and best obtainable. The HYDRIL records established are not "show" records; they represent regular drilling practice under ordinary conditions. In comparison with the highest class of drilling equipment that has ever been assembled in one field, they clearly demonstrate HYDRIL superiority!



HYDRIL and its operation are described in the 24-page, illustrated *"Story of Controlled Drilling"* Request your copy—coupon below.

DOHENY STONE DRILL COMPANY 3
714 West Tenth St., Los Angeles, Calif.

Please send me, with your compliments, "The Story of Controlled Drilling."

Name _____

Company _____

Address _____

DRILL CO.

***Cable Address* Hydril**

Oil Weekly, Jan. 31, 1930.

later pinched to 50 barrels per day, and except for short periods has remained at that figure.

A number of locations were soon made and by the end of the year seven wells had been completed in the area, with a couple having been made since the first of the year and others are anticipated. It appears that the east edge of the field has been found, since formations are dipping.

The most interesting completion was T. B. Slick, Pryor & Lockhart's Gratten 1, NEc NW NW Section 34-20-3w, two miles northeast of the Voshel pool. This well made 50 barrels per hour for the first few hours and then settled to 15 barrels hourly, before being pinched to 50 barrels per day, and an agreement made not to start offsets. The producing horizon is chat at 3018 feet. This area became known as the Gratten extension to the Voshel pool. However, there seems to be a break in production between the two spots as two tests only completed right before the end of the year found mostly gas and little oil in either the chat or sand formations.

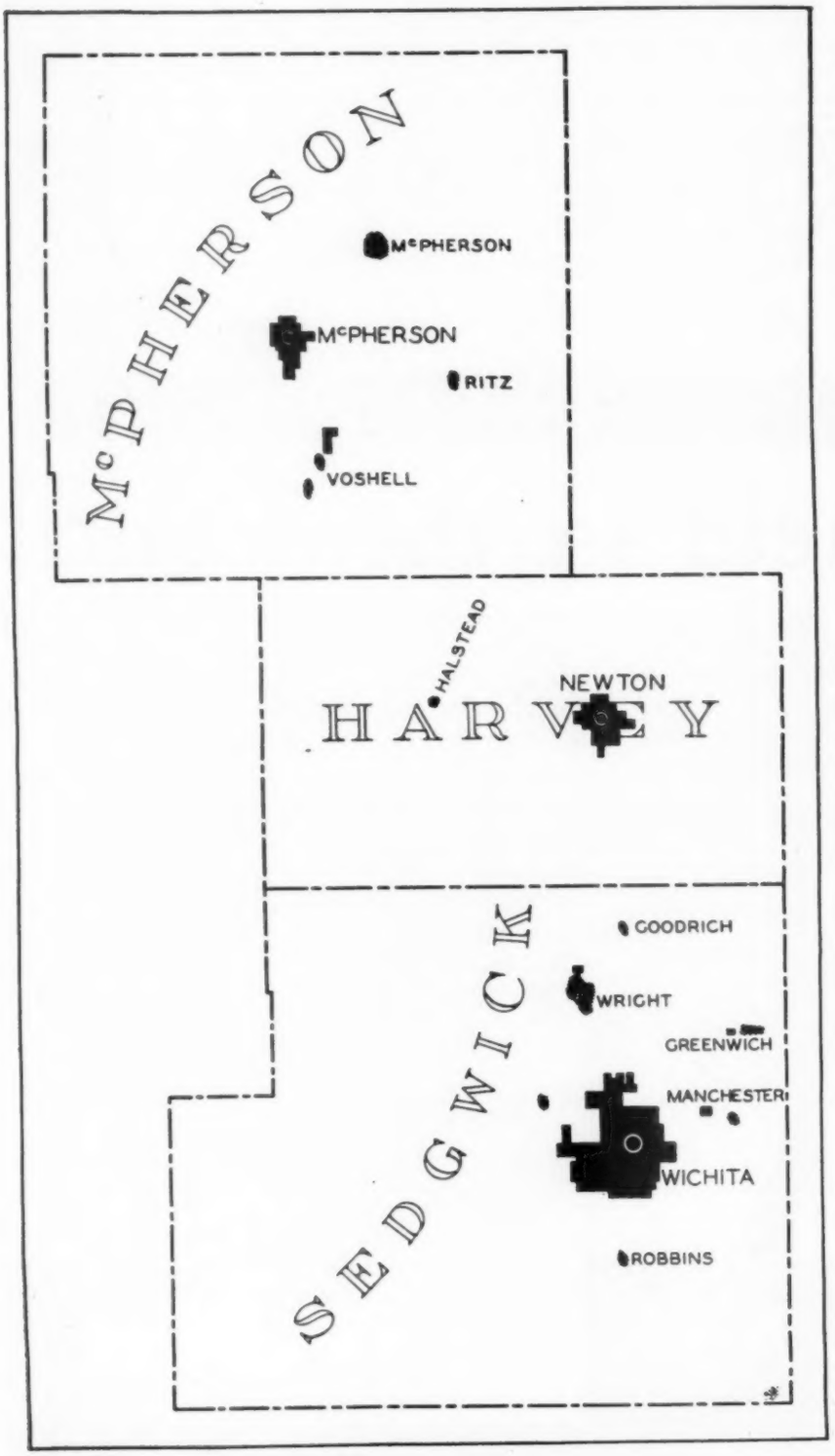
Several of the wells made around 2000 barrels in the Voshel proper pool, and since it was producing from the Wilcox sand, a real competitive drilling campaign has started with nearly 40 operations. Most of the locations are in the immediate vicinity of production since operators remember vividly the past erratic history of Kansas oil pools. It may be said, however, that this field offers the best bet of Kansas at this time for the development of a major oil field during 1930.

The second important discovery in McPherson County was the opening of the Ritz pool, when Shell Petroleum Corporation's Ritz 1, NWc SE SW Section 1-20-2w, about 12 miles northeast of the Voshel field, came in for the largest well found to that date in Kansas for some time. This was on June 30. The well produced 368 barrels of oil the first hour. It continued to flow 2000 barrels daily until water broke in on the chat producing horizon.

Several good wells were completed in the area, but after a strong send off most of them were hurt by water intrusion. All wells were pinched. A well that topped them all however, was Shell Petroleum Corporation's Miller 1, SW SW SE Section 1-20-2w, which yielded 2000 barrels the first three hours and steadily produced 450 to 500 barrels per hour. Lack of storage caused it to be put on back pressure and under proration agreement it was pinched to 50 barrels daily at the end of five days.

Despite the big wells the area is not considered a serious market factor due to the producing horizon and water intrusion. A number of wells will be drilled in the field during 1930.

There were several other developments in McPherson County but they ranked beneath the Ritz and Voshel pool by wide margins.



Active areas in Kansas

Sumner County

Interest in Sumner County, located in the extreme southern part of central Kansas, was revived by Gypsy Oil Company's Williams 1, NW SE SW Section 16-35-3w, near Caldwell, near the Oklahoma-Kansas boundary line. Like other flashy completions in the district, it soon slumped. The well produced 1400 barrels from the Wilcox sand and continued to hold up fine until some of the offsets commenced to come in when it fell off sharply. Only a few wells found the producing horizon which was confined to a small area.

A late strike in Sumner County was T. B. Slick et al's Peasel 1, NWc Section 33-31-1w, near Wellington. It is good for 500 barrels at 3368 feet in chat, but pinched to 50 barrels daily. A few wells are drilling nearby but due to the formation it is not considered favorably.

Other Central Areas

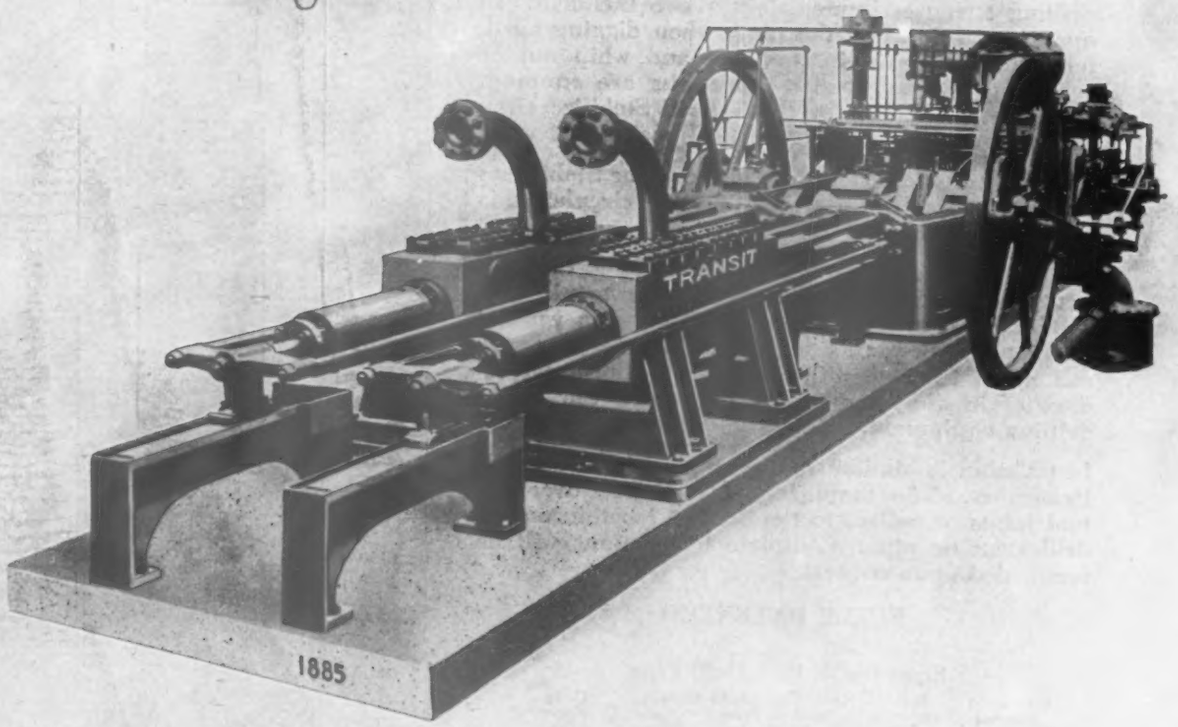
During the earlier part of the year a field that attracted attention was the

(Continued on page 160)

TRANSIT

The **TRANSIT** Cross Compound Crank and Flywheel Hot Oil Pump is so ideal that it bids fair to become very popular for hot oil pumping.

NATIONAL TRANSIT Pump & Machine Co.
Oil City, Pa.



ANOTHER BETTIS PRODUCT

THE OIL FIELD SENSATION OF 1930

As a further development of the Bettis principle of cushioning the drilling string, Bettis Drill Stabilizers were developed. They are in reality an "enlarged edition" of Bettis Protectors in that they are of comparatively the same shape but are manufactured in much larger sizes to run through casing from 9⅝″ to 20″ inside diameter.

These Stabilizers are made of exactly the same rubber as used in Bettis Protectors and are placed upon the drill stem immediately above the drill, spaced approximately 30 feet apart up to the bottom of the casing.

The point of greatest distortion and strain in the drilling string is immediately above the drill. In open hole formation the pipe, when digging hard, tends to corkscrew in the hole and whip out of center, particularly when large bits are running. With the installation of Bettis Drill Stabilizers the pipe is forced to retain its vertical position.

There is sufficient clearance between the Stabilizers and the wall of the formation so that circulation is not hindered in any way.

In case of fishing jobs the Stabilizers keep the drill and pipe centered, making them easier to pick up. The Stabilizers not only keep the string in vertical position and prevent side play and wobble, but permit much faster drilling because of the great reduction in vibration and strain upon the entire drilling equipment.

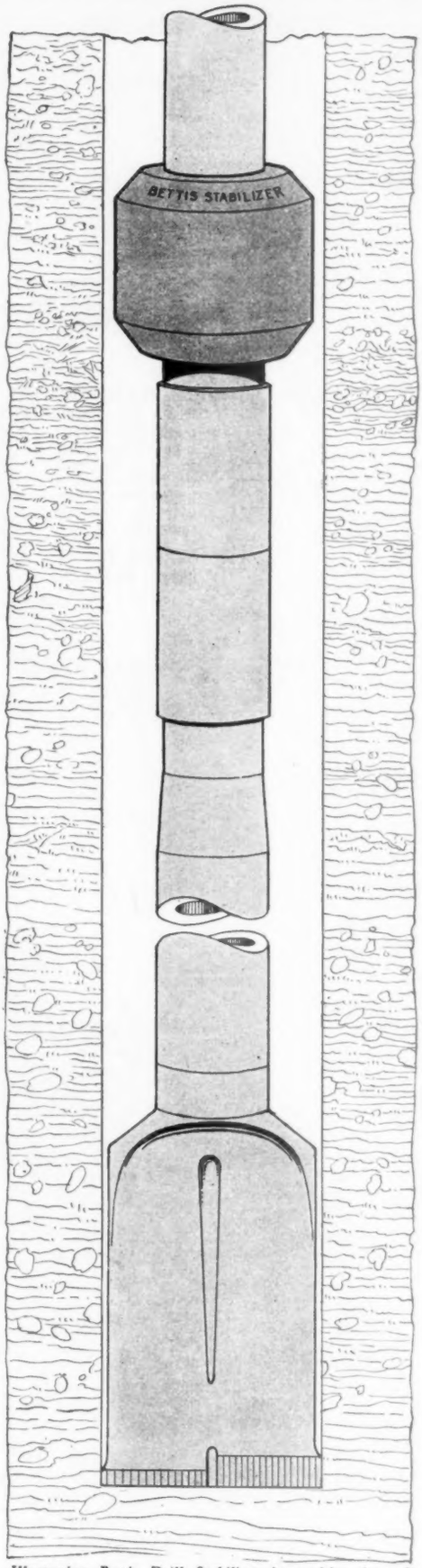
Installation is similar to the application of Bettis Protectors. The Stabilizers are slipped over the tool joints or collars to the desired location on the drill stem or pipe. Complete instructions will be forwarded upon request.

FULLY PATENTED

Sizes for A. P. I. Drill Pipe

Rated Size	O.D. Drill Pipe	O.D. Expanded on Drill Pipe	Weight lbs.	Code Name
6″x16″	6⅝″	16⅛″	57	Aster
6″x14″	6⅝″	14″	39½	Clover
6″x12″	6⅝″	12″	30	Daisy
6″x10″	6⅝″	10¾″	18	Fern
5″x12″	5 13/16″	11⅝″	29	Ivy
5″x10″	5 13/16″	10 1/16″	20½	Jasmine
5″x 9″	5 13/16″	9″	14	Lilac
4″x 9″	4½″	9″	15½	Moss
4″x 7″	4½″	7″	6	Violet

"Best bet yet"



Illustrating Bettis Drill Stabilizer in position immediately above the collar.

BETTIS

DRILL STABILIZERS

HOLD PIPE IN CENTER

PREVENT TWIST-OFFS

STOP WHIPPING ABOVE THE DRILL COLLAR

PREVENT HINGING ACTION OF DRILLING STRING

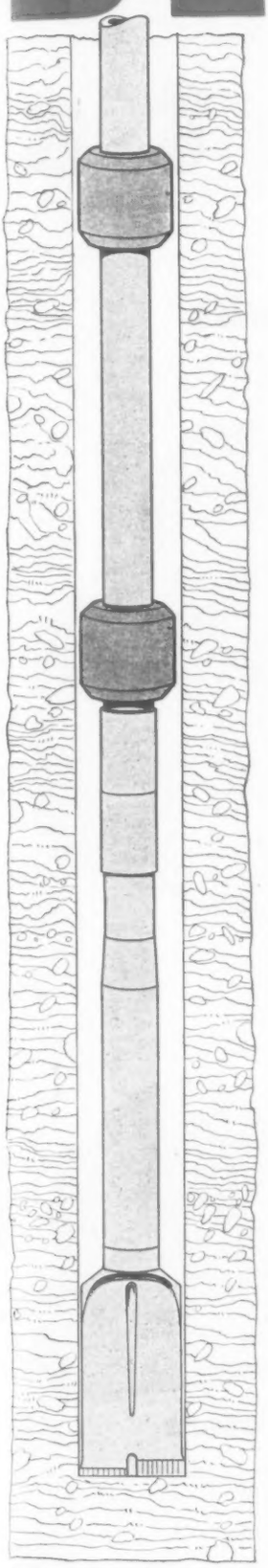
OVERCOME VIBRATION

DRILL STRAIGHTER HOLE

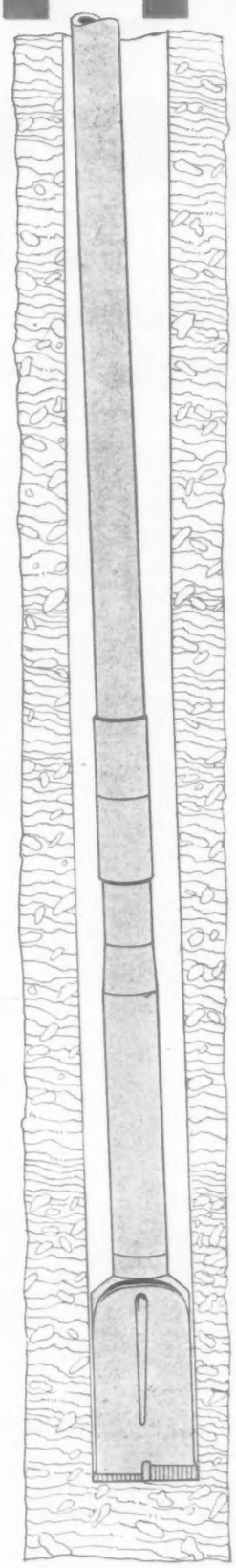
NO INTERFERENCE WITH OVERSHOT

STOP EXCESSIVE WEAR ON BOTTOM COLLARS

"Best bet yet!"



Drill stem showing two Bettis Drill Stabilizers in place, preventing wobble and excessive vibration of the drill and string.



Illustrating a drill string WITHOUT Bettis Stabilizer, encouraging twist-offs and crooked hole.

Patterson-Ballagh Corporation

Insurance Exchange Building, Los Angeles

Texas and Gulf Coast Distributors:

BETTIS SALES CO., 616 Public National Bank Bldg., Houston

Oklahoma Distributors:

BAILEY AND BECKER COMPANY, 410 Thompson Bld., Tulsa

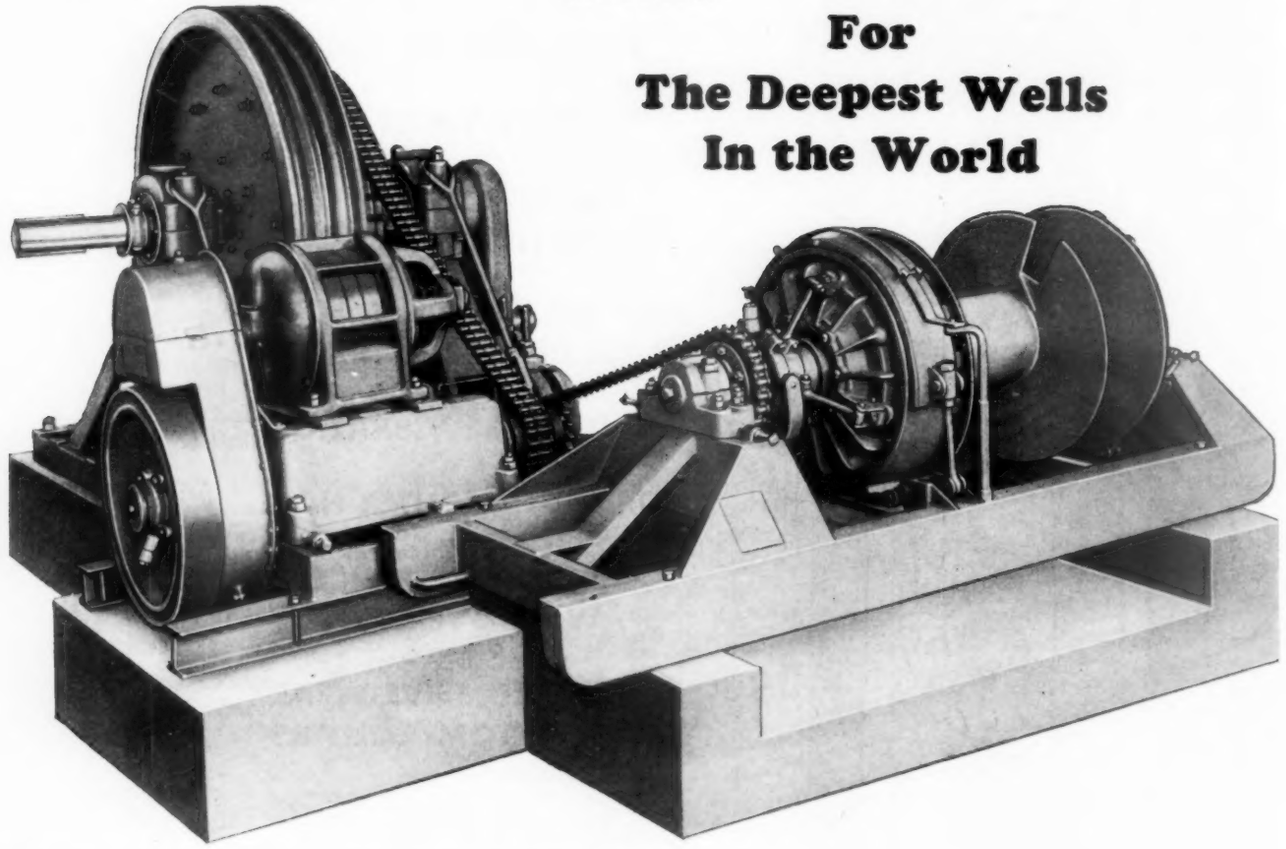
New York Office: 39 Cortlandt St.

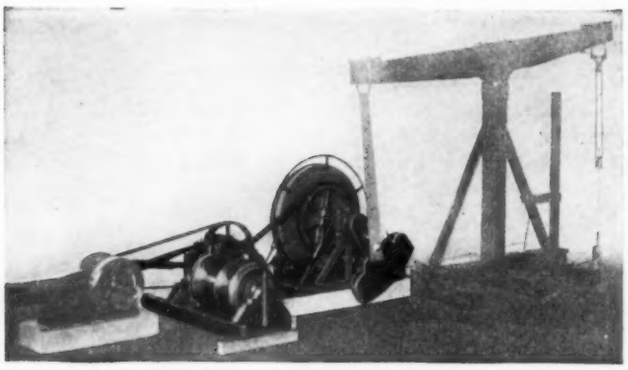
Carried in stock at Los Angeles, Santa Fe Springs, Ventura, Kettleman Hills, Bakersfield, Coalinga, Long Beach, Tulsa, Houston, Wink, Texas; Calgary, Alberta, Canada; New York City.

OCS
Rig Fronts

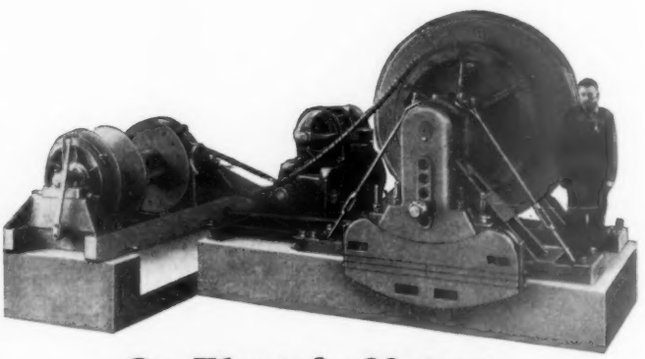
(Patents Pending)

For
The Deepest Wells
In the World





For Gas Engines



Or Electric Motors

THE OIL COUNTRY SPECIALTIES MFG. CO.

COFFEYVILLE, KANSAS

Hynes, California - Sweetwater, Texas - Tulsa, Okla. - Seminole, Okla.
Hillman Kelley, Inc., Los Angeles, California

Eastern States Output *Materially* Increased During Year

By Special Correspondent

DURING 1929 operators in Eastern fields enjoyed a good season, and anticipate a better one this year. Activity will be curtailed during the remainder of the winter months until the time when materials can be transported with greater ease and with lessened expense.

Pennsylvania

One of the oldest producing fields—the old Bradford field in Pennsylvania—developed more wells than any of the others of that region. During the past year more than 2500 wells were drilled, a part of which, however, were pressure wells, drilled for the purpose of swelling the production of nearby wells. Work is progressing in this Pennsylvania area, and with good weather, advance tests will be made in an effort to open up new producing areas.

Production of the Bradford field, as reported at the close of the year, was around 26,350 barrels daily, while the Allegheny field of New York was given a daily production of 8858 barrels. Indications are that these averages will be increased during 1930 by the drilling of additional wells.

Furthermore much reconstruction work is under way in the two fields, which is expected to accelerate production materially during 1930. Petroleum Reclamation Company will soon complete 15 miles of 24-inch water line from Olean into the Bradford area. Bradford Transit Company is erecting 15 more storage tanks at its various gathering stations in order to be able to handle production as rapidly as it develops. South Penn Oil Company has purchased a tract of 100 acres near Prenticevale, where 18 80,000-barrel tanks are to be constructed as required, to handle the output of the wells in this area.

West Virginia

The West Virginia fields did not make much of a showing in so far as oil development, during the past year, and few new areas were opened up. However in natural gas developments and production, it was among the leaders of the Eastern fields. Much test work is planned for the present year to develop new areas in the state, with hopes high for a better showing in 1930.

Kentucky

Kentucky was one of the busiest developing fields of the East, more than doubling its production of 1928. The eastern part of the state as well as those sections near the center, showed little development. The western portion, however, particularly Ohio and Daviess Counties, displayed great activity and development. The former developed the greatest production through the finding of Stary sand production with wells producing as high as 1000 barrels the first 24 hours, at depths from 350 to 700 feet. This unexpected large production resulted in the demand for immediate action as pipe lines were unable to handle the production. For this reason a meeting was called December 15 at Owensboro, at which it was decided to establish a 30-day shut-down, which expired January 15 but was re-established for a like period. As soon as this shut-down period has passed, it is expected that a drilling rush will start in several counties adjoining Ohio and Daviess. The western part of the state is getting a heavy leasing campaign, which means that much wildcatting will result.

Kentucky's production for 1929 approximated 8,000,000 barrels, the largest in the history of this field, which dates back as far as 1818, when the old American well was drilled on the banks of the Cumberland river. Illinois Pipe Line Company alone handled more than 3,000,000 barrels; and the Producers Pipe Line Company handled more than 1,000,000 barrels, most of which was sent to Louisville by river barges. Crude handled through Illinois Pipe Line Company's lines went to Lawrenceville and Robinson, Illinois.

Ohio

Of Ohio's three producing fields, the Central Ohio area was the most active. There gas companies pushed development work in an effort to bring in more gas production, with more than 1300 wells drilled. In southeastern field, more than 1000 wells were drilled; while in the northwestern field, less than 200 wells were brought in. This year, considerable development is expected as many promising areas remain available for production.

Indiana

Indiana, like Northwestern Ohio, failed to make much headway last year; but indications point to more intensive development this year as thousands of acres of leases are held for development particularly in the southern half of the state to the north of the rich Owensboro, Kentucky, field; and also in the western and southeastern portions of the state.

Gas development in both Indiana and Kentucky has been accelerated by the entry of the Missouri-Kansas Pipe Line Company which has secured a nice volume of gas in both states, and is constructing lines to the several towns and cties.

Illinois

Illinois developed one of the outstanding fields of the Eastern area during the past year in Sugar Loaf township, St. Clair County. This field, known as DuPo, was brought in in the Trenton limestone at depths varying from 450 to 900 feet. Much of this field consisted of town lots, with the result that many wells were drilled. This shallow field, however, may be short lived, as compared with acreage territory.

Wildcat tests will be made during 1930 in all territory south of St. Louis, along the east side of the Mississippi river, as soon as the winter weather passes. Much leasing in untested territory has been going on through the winter.

Michigan

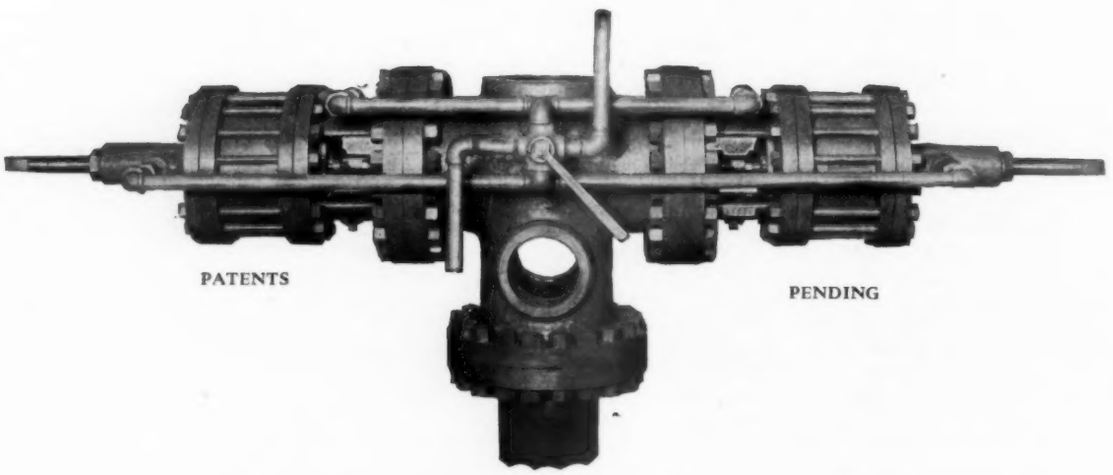
Michigan's development during the past year shifted from the Muskegon County field to Isabella and Midland Counties. More than 6,000,000 acres have been leased, according to reports, and nearly every county in the state will be the scene of wildcat operations sometime this year.

Production of oil in Michigan at the end of 1929 averaged 15,000 barrels daily, coming from Muskegon, Isabella, Midland and Saginaw Counties. Of this amount, the bulk comes from the so-called Midland field in Isabella and Midland Counties, where production is from the Dundee at from 3500 to 3600 feet. Development of this field is progressing conservatively as the bulk of the potential producing area is held by Pure Oil Company. While the field is rather well defined, considerable promising acreage is available for development this year.

COMPLETE CONTROL

C-I-W

Steam-Operated Blowout Preventer



PATENTS PENDING

The many advance features incorporated in this preventer make it the most outstanding method for closing high pressure wells in the industry today.

It is closed by steam or other pressure available. It is controlled remotely and closed instantaneously. It is manipulated by a four-way operating valve which opens and closes the preventer. When closed, the drill stem or casing is gripped with two solid steel rams packed with special hydraulic rubber packing designed so that the heavier the pressure the tighter the pack becomes.

The principle of operation embodied in this preventer makes it impossible for wells to blow out regardless of the amount of pressure developed. When the steel rams are closed they form a complete circle of steel around the drill stem thru which the couplings CANNOT PASS and at the same time effectively pack off around the drill stem and also the area between the drill stem and the casing.

These preventers are made to fit standard casing in sizes from 6⅝" to 16" outside diameter. Flanges by which the preventer is connected to the last string of casing are made in reducing sizes. Special sizes made on order.

All preventers are made entirely of steel and before leaving our plant each is tested and guaranteed to withstand 3000 pounds pressure.

CAMERON IRON WORKS INC.

HOUSTON TEXAS

California Distributor: PETROLEUM EQUIPMENT CO.
2800 S. Alameda St., Los Angeles, California

OF HIGH PRESSURES

C-I-W
Tubing Control
Head

NOW AVAILABLE IN TWO TYPES

Heavy Duty
Tested to 6000 pounds, is designed for pressures over 750 pounds.

Regular
Tested to 1200 pounds, is designed for pressures under 750 pounds.

With the use of C-I-W tubing control heads many jobs thought absolutely impossible have been successfully completed by numerous operators.

With the aid of these control heads tubing may be run into the well against pressure without killing the well or shutting off the flow.

With the use of these heads it is possible to run graduated strings of tubing; to wash the well thru the tubing and complete practically every other known phase of tubing work where high pressures are encountered.

It operates on the same principle as a steam operated preventer. Two steel rams with hydraulic rubber packing are operated by ratchet lever jacks and lock screws. Thru use of the lever jacks you can instantaneously pack off or unpack your tubing and by means of the locking screws the rams can be securely and effectively locked around the tubing.

These tubing heads form a complete unit and will handle any "tubing job" you may have. No additional parts, equipment or accessories need be purchased when it becomes necessary to use them for a different tubing job than for which they were purchased.

Write us for pamphlet, detailing the many operations possible with these control heads.

CAMERON IRON WORKS INC.
HOUSTON TEXAS

California Distributor: PETROLEUM EQUIPMENT CO.
2800 S. Alameda St., Los Angeles, California

Review of Important Developments in 1929

North Louisiana-Arkansas Area Loses in Annual Output

By W. W. MOORE

NORTH LOUISIANA, South Arkansas and East Texas, were the only adjacent areas in the Mid-Continent territory which did not experience an over-production of oil during 1929.

The advent of 1930 finds prospects of four new oil fields, two in North Louisiana and two in South Arkansas. The fields that give promise during the coming year are Zwolle in Sabine Parish and Cartersville-Sarepta in Bossier and Webster Parishes in Louisiana, and Hillsboro and Urbana, both in Union County, Arkansas.

Two fields that loomed up during 1929 as possible active oil areas have passed into the status almost of innocuous desuetude. The Mount Holly district of Ouachita County, Arkansas, between production in the Louann sector of Smackover and the Stephens field in Columbia County, obtained five producers in approximately 20 tests drilled and the daily production now amounts to 150 barrels daily. Pay was obtained 600 feet below Smackover and Stephens at 2800 to 2850 feet.

This field loomed up in February, 1929, but soon shot its bolt. A 12-mile pipe line built to the field by Houston Oil Company from its refinery at Camden is taking the output of Mount Holly.

The Dixie field of Caddo Parish, a southeastern offshoot of the Shifttail lake part of the old Pine Island field, was a pleasant mid-summer dream. It blossomed in May and passed its peak as the first frosts of autumn came. Pay there was obtained in the Woodbine sand around the 2400-foot level. More than 80 holes were drilled in Dixie, including tests drilled prior to the discovery of oil in commercial quantities, and 35 wells were completed as producers. The total yield has been approximately 175,000 barrels.

Lenticularity of the Woodbine sand and the short life of the larger wells together with the comparatively narrow confines of production, kept Dixie from ranking as a major field.

The first producer of any magnitude completed in Dixie a few five and 10-barrel wells had been completed in years past, was D. C. R. Oil Company's Hunter Estate 1, NW NW Section 17-19-14. It was good for about 150 barrels daily.

Going over to NE NE Section 18-19-14, Gulf Refining Company completed a 3300-barrel flowing well in Oden 1, but in the west corner of the same forty a failure resulted. Dropping to the southwest corner of this forty a small producer was obtained and then in the southeast corner of the forty another failure was added. This behavior was typical of all Dixie operations.

The most spectacular quartet of producers in Dixie were added within a 660-foot square in NE NE Section 17-19-14, SE SE Section 8-19-14, SW SW Section 9-19-14, and NW NW Section 16-19-14. These four wells were all good for over 3000 barrels each at completion and by a coincidence the pay was all obtained at total depth of 2436 feet.

This extension was made in August by Ray-Dawes Drilling Company's Hunter 1, SW SW Section 9-19-14. The Texas Company's Hunter 1, SE SE Section 8-19-14, a western offset, was above 3000 barrels. Standard Oil Company of Louisiana's School Board 1, NW NW Section 16-19-14, was of about the same capacity after being deepened a few feet to 2436 feet, and the fourth of the quartet was Gulf Refining Company's Hunter 3, NE NE Section 17-19-14. Offsets failed to measure up to these levels and while the play shifted to that part of the field mostly only small pumpers were obtained.

It is likely that only The Texas Company, which went into the field late in the play and obtained its bigest producer in its first hole, will make dividends from operations in Dixie.

Zwolle

On Thanksgiving Day, 1928, R. L. Gay, Trustee, completed Bowman-Hick 1, Section 14-7-14, Sabine Parish, Zwolle district, as a 50-barrel flowing well. It was in rank wildcat territory being more than 20 miles from nearest production. The well was completed at 2130 feet in a sand at the top of the chalk rock. The well was the first test drilled by Gay, who with Walter E. Cooks of Paterson, New Jersey, had blocked 20,000 acres of land at the instance of H. D. Easton, Shreveport geologist, who in 1922, had made an extensive geological survey of the area. Easton had found the Sabine River dividing Texas and Louisiana, at one of its lowest stages in recent years and he walked over 90 miles in the bed of the stream obtaining data from outcrops never seen by any other geologist.

Gay's well turned into the tanks December 1, 1928, and averaging over 49 barrels daily during its first three months, failed to stir the imagination of the oil fraternity in this territory. So many holes had been drilled in the territory without any commercial production that the well was looked upon as something of a "flash in the pan."

Gay lost his second hole offsetting his producer and the "I told you so" boys enjoyed an inning. Then in May, 1929, he went into the chalk rock to a depth of 2177 feet in Bowman-Hicks 3, in the same section and the well was turned into tanks after 2½-inch tubing was set, as an 11-barrel well. This well gradually mounted in daily yield to 38 barrels in August when it spudded upward and today is making over 110 barrels daily. The discovery well also began to mount in May, rising to an average of 63.97 barrels daily and is now making over 180 barrels daily.

Up to the end of August, 1929, these wells had sent 19,221 barrels through the four-inch gathering line which Standard Oil Company of Louisiana laid to the well. Early in the autumn a third producer was completed so the monthly average of the two wells separately has not been released since that time.

Bowman-Hicks 4 in the same section was completed as the third producer, it was the first and only one of the quartet of producers to show water. It was drilled into the chalk rock formation to a total depth of 2350 feet and standardized as making 75 barrels of oil daily along with 38 barrels of salt water. Its daily yield is now over 175 barrels.

With Bowman-Hicks 5 in the same section placed on the beam in December, it having been drilled to a point near the base of the chalk rock, a total depth of 2586 feet, the daily average of the field December 31, 1929, was 620 barrels.

Total production from this quartet of wells in December was over 16,000 barrels, with the year's combined yield from that part of the field in excess of 63,000 barrels. The oil is between 43 and 44 gravity.

It was on November 26, 1929, that the outstanding event of the year in this territory from a production standpoint occurred. Gay completed Bowman-Hicks in Section 34-8-12, twelve miles east and slightly north of his other wells as an estimated 20,000-bar-

Subsidiary of United States Steel Corporation

You Can Depend Upon

AMERICAN

STEEL & WIRE COMPANY

WIRE ROPES

(ON THE YELLOW REELS)

STOCKS
CARRIED THROUGHOUT ALL OF THE OIL FIELDS

« « « YOUR NEAREST CAN SERVE

COMPLETE ROTARY AND CABLE EQUIPMENT FROM ONE DEPENDABLE SOURCE

Are you drilling in the South-west, either in established fields, or wild-catting? If so, there's a Bridgeport Store near you, fully stocked with tools that are nationally known, tried and tested, for both ROTARY or CABLE drilling.

Whether you buy or rent, your nearest Bridgeport Store is ready to serve you, get the needed tools to you quick and save you time and money.

Study the map, it shows the location of every Bridgeport Store, together with the name of the manager, the number of trains, buses and airplanes radiating from each town daily. Pick the store nearest you, for quickest service.

Here's 3 big points on Bridgeport Service to remember. On all rentals, we allow transportation charges not exceeding 10% of rental fee, when our tools are shipped by public carrier, and claims supported by receipted freight bills. Rental fee is charged only from the time tools leave the transportation company's office at destination, to the time they are returned to them. We'll accept your long distance phone calls or wires collect, 24-hours every day. Bridgeport Stores never close.

R. W. WALTERS
Sales Manager

COLO.

KANS.

OKLA.

← PAMPA

W. E. McLaughlin. *Manager*
4 Trains
21 Buses & Trucks

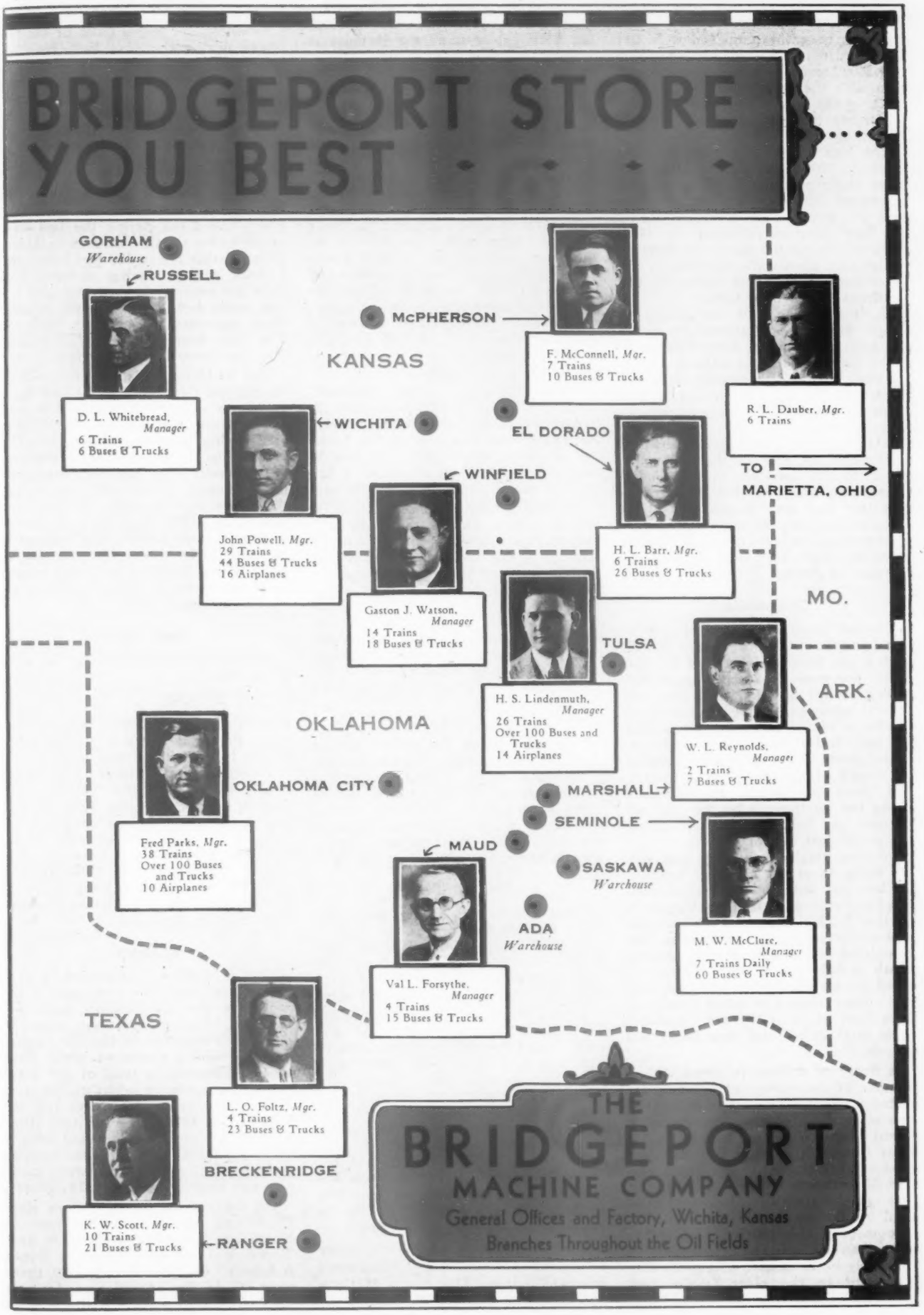
TEXAS

NEW MEXICO

NEW HOBBS

Geo. H. Frese, *Mgr.*
4 Trains from Carlsbad.

REGISTERED U.S. PATENT OFFICE


BRIDGEPORT STORE YOU BEST
GORHAM
Warehouse
RUSSELL
D. L. Whitebread, Manager
6 Trains
6 Buses & Trucks
McPHERSON
KANSAS
F. McConnell, Mgr.
7 Trains
10 Buses & Trucks
R. L. Dauber, Mgr.
6 Trains
TO MARIETTA, OHIO
WICHITA
John Powell, Mgr.
29 Trains
44 Buses & Trucks
16 Airplanes
EL DORADO
H. L. Barr, Mgr.
6 Trains
26 Buses & Trucks
WINFIELD
Gaston J. Watson, Manager
14 Trains
18 Buses & Trucks
MO.
TULSA
H. S. Lindenmuth, Manager
26 Trains
Over 100 Buses and Trucks
14 Airplanes
ARK.
W. L. Reynolds, Manager
2 Trains
7 Buses & Trucks
OKLAHOMA
OKLAHOMA CITY
Fred Parks, Mgr.
38 Trains
Over 100 Buses and Trucks
10 Airplanes
MARSHALL
SEMINOLE
MAUD
SASKAWA
Warehouse
ADA
Warehouse
M. W. McClure, Manager
7 Trains Daily
60 Buses & Trucks
Val L. Forsythe, Manager
4 Trains
15 Buses & Trucks
TEXAS
L. O. Foltz, Mgr.
4 Trains
23 Buses & Trucks
BRECKENRIDGE
K. W. Scott, Mgr.
10 Trains
21 Buses & Trucks
RANGER
THE BRIDGEPORT MACHINE COMPANY
General Offices and Factory, Wichita, Kansas
Branches Throughout the Oil Fields

rel producer in the chalk rock formation, at total depth of 2413 feet. The well has never been opened wide but has consistently flowed between 3000 and 3600 barrels each day since completion with the gate valve opened one-sixth of the way. This well's runs in December were in excess of 100,000 barrels.

The location of this test as were those in the older part of the field were made pursuant to Mr. Easton's geological computations, this extension well having been drilled on one of the "pet" locations he made in 1922. This well is on the northeast flank of a high formation while the wells in the older part of the field were on the southwest slope of a high.

Gay's extension well, the gravity of whose oil is above 39, started the greatest drilling campaign since Champagnolle, Union County, Arkansas, was at its peak. The development was regarded as the most important in this territory since the discovery of Smackover in 1924.

A total of 25 locations and drilling operations are now in the field as a sequel to this development. No close-in acreage was available due to the fact that Gay and Cooke had 10,000 acres surrounding the test and checkerboarded back to link up with the 20,000 acres they had under lease in the western part of Zwolle.

Cartersville

The old Cartersville gas field of Bossier Parish came to prominence in 1927 with a gas horizon from 2800 to 3000 feet. Some of the deeper wells had strong sprays of oil. Back in 1923 several producers had been completed southeast of the Cartersville gas field but later had yielded to salt water encroachment. A few producers, most of them with a large amount of salt water, had been completed spasmodically along the southern edge of the old Sarepta gas field in Webster Parish, the parish just east of Bossier. These producers obtained the pay and still are doing so at the 2700-foot level.

Then last autumn Deleware-Louisiana Development Company's Kilgore 1, Section 31-23-11, Bossier Parish, southeast of Cartersville gas production, was completed in two feet of sand at total depth of 3164 feet, flowing 218 barrels of 43 gravity oil through 2½-inch tubing. Since then two other producers have been added at the same horizon, their total daily yield now being 500 barrels.

A flurry of drilling followed with a number of deepenings of old and depleted gassers in Cartersville to the new oil horizon, which is also probably a part of the Woodbine formation, the same formation from which the gas production was obtained. There are now 20 operations or more under way in that area counting the deepenings. Bad road conditions have hampered development of this district considerably more than has been the case in Zwolle, especially in the eastern part of Zwolle. The road to the older Zwolle field sometimes referred to as Blue Lake, is being remedied now by building of a gravel road, construction already having been begun since the increase in activity.

South Arkansas

As the year 1929 rounded down the home stretch, South Arkansas which aside from the Mount Holly flurry and a revival of drilling in the northeast of Smackover following a quarter of a mile northeastern extension in Section 27-15-15, Ouachita County together with perforation of deeper Smackover wells at higher sand levels there being three pay horizons in that field, broke out with the completion of a wildcat test in Union County in the Hillsboro district, three miles from nearest production, and a drill stem test of another well that showed oil at 3535 feet, the lowest level at which pay was ever encountered in Arkansas.

In the Hillsboro district Modisett Drilling Company's Union Sawmill 2, Section 14-18-14, three miles from nearest production, was put on the beam and pumped 110 barrels for the first 30 hours, seven per cent of the yield being salt water. Total depth is 2238 feet.

Possibility that the Urbana district, also in Union County, will get the deepest Arkansas pay, probably a lower stratum of the Woodbine, is seen in a drill stem test of Marine Oil Company's Thompson A-3, Section 10-18-13, which tested 16 fourbles and one joint of oil free of water through drill stem at total depth of 3535 feet. This is almost 300 feet below the deepest pay in Champagnolle six miles to the northwest, the deepest oil yield there having been at 3250 feet.

Champagnolle (Rainbow City) practically faded from the picture during the year, although there was a hope for a time that an eastern extension into Sections 6 and 7-17-13 would be of some consequence. However, extensions there proved failures and at present there are only three tests under way in the entire Champagnolle field.

Deep Drilling

What the lower Trinity formation holds for this territory remains still a matter of speculation although two tests drilled to that depth have furnished not only geological data of great value but also some promise of hope.

Dixie Oil Company in its Robertshaw 92, Section 13-21-15, Pine Island district, Caddo Parish, Louisiana, went to 6125 feet and obtained a 150,000-foot gas show in the lower Trinity. In Cotton Valley where the upper Trinity from 4400 to 4800 feet has been producing as for several years in a series of sands now being classified and tabulated by J. S. Ross of the United States Bureau of Mines, Magnolia Petroleum Company had an excellent show of oil in a core of sand in the lower Trinity from 6947 to 6958 feet. A bad casing seat let in salt water from above and sand is still being cored below 6980 feet. This test is McCook and Hibbler 1, Section 22-21-10.

Gas Development

Development in gas fields of the territory during the year have been intriguing. Deeper horizons that those from which gas was being obtained have been tapped in the Richland, Monroe and Bethany fields besides the opening of a new gas field in Johnson County, Arkansas, and completion of a commercial gasser in Pope County, Arkansas.

Monroe, which is located in parts of Morehouse, Ouachita, and Union Parishes, completed during the last days of 1929 two sizeable gassers in Morehouse Parish 175 to 180 feet below the horizon now producing an open flow daily gas capacity in excess of four billion cubic feet daily. A stiff gummy shale separates the two gas horizons. The upper horizon is from 2150 to 2135 feet, the lower below 2300 feet.

The Richland Parish gas field where the present two billion cubic feet daily open flow capacity is obtained is producing from the 2450 foot level, that field having been opened November 1, 1926. Due to the immense pressure of the wells they are not, except in rare instances, opened wide even to get their open flow capacity. A new horizon at 2900-3000 feet has been found during the year and its development is expected to be of considerable size as Monroe and Richfield are being tapped by three interstate trunk gas lines, recently completed.

East Texas

Palmer Corporation during the year added two more gassers to its discovery gas well completed in 1928 in East Carroll Parish in the extreme northeastern part of Louisiana, proving that when the need arises a considerable supply is available in that area.

Two new gas horizons were found during the year in the Bethany gas field of Panola County, East Texas, one at the 2900-3000-foot level and the other at the 3100-3200-foot level. Bethany now produces gas from the 900-1000-foot horizon, the 1900-2000-foot zone, the 2200-2300-foot level, the 2700-2800-foot horizon and the two uncovered during the last year.

Wildcats

That wildcatting was carried on during the last year on a wide scale is reflected in the completions totals for the year. During 1929 there were 271 oil wells completed in the Shreveport territory with a combined initial yield of 45,682 barrels; a total of 367 gassers with a combined initial gas yield of 3933 million cubic feet daily; and 288 failures. In 1928 in the territory there were 210 producers completed with a combined initial yield of 81,453 barrels; a total of 315 gassers, combined capacity not aggregated; and 333 failures.

On the first of January there were 75 drilling operations under way in North Louisiana, 18 under way in East Texas, and 46 under way in South Arkansas. On December 1, 1929, there were 153 drilling operations under way in North Louisiana; 16 under way in

"GUMBO BUSTER"

The "Gumbo Buster" Traveling Block is equipped with 36" Roller Bearing Sheaves. The large roller bearings operate on a 7" center pin which is made from special alloy steel hardened and ground to size. The center pin is set above the center of the block causing it to land in an upright position. All projecting nuts are guarded and tapered to prevent catching on projections.

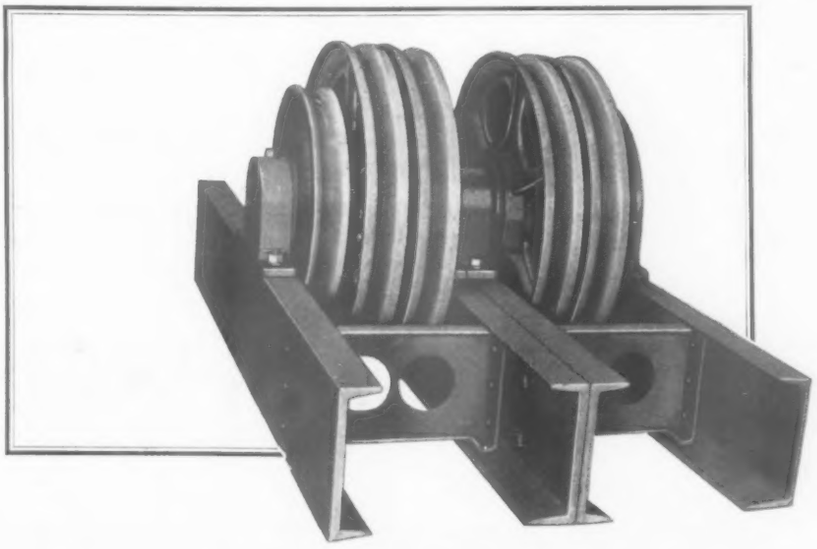
The 66" traveling block is equipped with steel wire line guards which can be quickly and easily removed from the block and replaced after wire line has been strung up. Each wire line guard is held in place by four large bolts, the heads of which are counter sunk in the guard so they can not be sheared off by catching on racked pipe or other projections. Each roller bearing is oiled by individual Alemite connection.

The "Gumbo Buster" Straight Line Crown Block has six sheaves mounted on two pins. The outside end of each pin rests in a separate box which is supported by a 50 lb. per foot I beam. The inside ends of the two pins rest in the same box which is supported by two 50 lb. per foot channel irons securely bolted together.

There are four 36" manganese steel sheaves for drilling line which rotate on large American roller bearings. These bearings in turn rotate on hardened and ground steel sleeve which is shrunk on an alloy steel center pin 7" in diameter. This block meets the recommendations of all wire rope manufacturers.

The outside sheaves are 28" in diameter and are for the catline and deadline. They are made of semi-steel and operate on a bronze bushing. Each of the six sheaves is lubricated from the end of the pin by an individual Alemite connection.

For convenience in assembling on water table this Crown Block is so made that it can be taken up in two of four sections.



Write Today for Information.

Republic Supply Company

OIL AND GAS WELL SUPPLIES

Cable and Rotary Tools

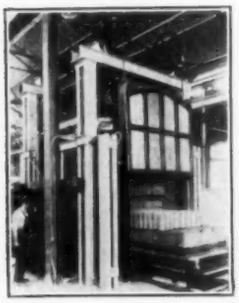
GENERAL OFFICES: HOUSTON, TEXAS

Pyrometer heat-treating control

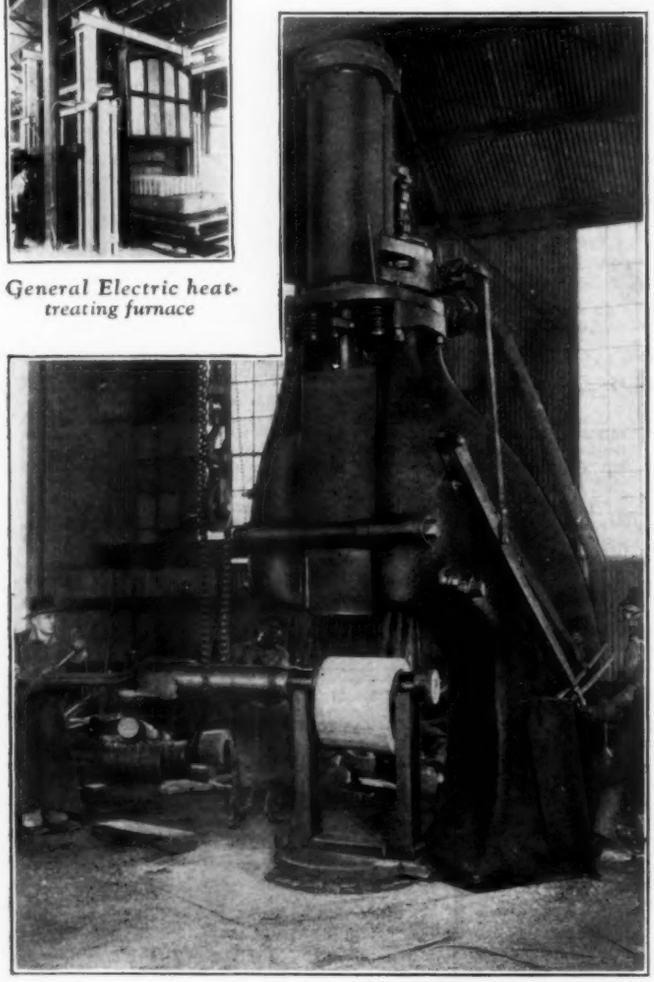
100 SUCCESSFUL

Developed by "old timers"

in CALIFORNIA'S



General Electric heat-treating furnace



Toughness and strength to resist the highest formation pressures is secured in Baash-Ross Blowout Preventers by forging the bodies from solid billets of specially selected steel

EVERY export crate that leaves the Baash-Ross loading docks for oil fields that dot the world's map carries more than a good tool...more even than honest forgings and Timken bearings and manganese sheaves ... marks of the ultimate in tool quality ...

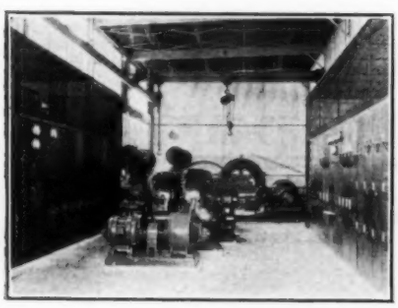
Each of the hundred tools shown in the 240-page Baash-Ross catalogue . . . first built to meet a definite need . . . in its developed form now carries the best experience of the men who have drilled the world's deepest and most famous fields . . . Signal Hill...Santa Fe Springs...Kettleman Hills...the first well ever to pass 9,000 feet.

The shed that housed the first shop at Brea . . . when one well only crowned Signal Hill . . . has expanded to 83,078 square feet of modern manufacturing equipment under the original policy of working with and learning from the men that ran the tools . . . of doing every job better than seemed necessary . . .

Export Department . . . . *30 Church Street, New York*
District Offices: Houston, Texas . . . *1816 Nance Street*
Tulsa, Oklahoma . . . . . *International Supply Co.*

BAASH-ROSS

P. O. Box 1297 Arcade Station



Central Power Control House

Oil Tool Machine Shop

Los Angeles Plant

OIL FIELD TOOLS ◆ ◆ ◆

. . . proved by service

DEEPEST FIELDS!

Catalogue describing these and other Baash-Ross tools sent on request . . . without charge.

Hi-Deck Crown Block

HI-DECK CROWN BLOCK

DESIGNED for high speed and long trouble-free service on the deepest wells . . . handling the heaviest strings of pipe and casing with safety to men and equipment.

Installed over any standard pumping block, without interfering in any way, and may be removed to another location at completion of drilling without disturbing pumping block.

Wire lines run straight to travelling block, without side drag. Manganese sheaves of 36" or 48" diameter, with A. P. I. specification ground grooves. Each sheave runs on individual roller bearing. Users report greatly increased wire line life with these blocks.

Sheave and bearing assemblies interchangeable with Baash-Ross Travelling blocks. Alemite lubrication to each sheave.

HOSMER AUTOLOCK BLOWOUT PREVENTER

Developed to meet conditions at Santa Fe Springs, where excessive pressures without warning have resulted in fires causing millions of dollars damage.

Packing assembly hangs open in derrick; locks by snapping around drill pipe. Drops into place in preventer body, which is mounted on surface casing; rubber packing ring is sealed by setting down a tool joint or coupling—or by *lifting* the string. No well equipped with this Preventer has ever blown out!

ROTARY SLIPS

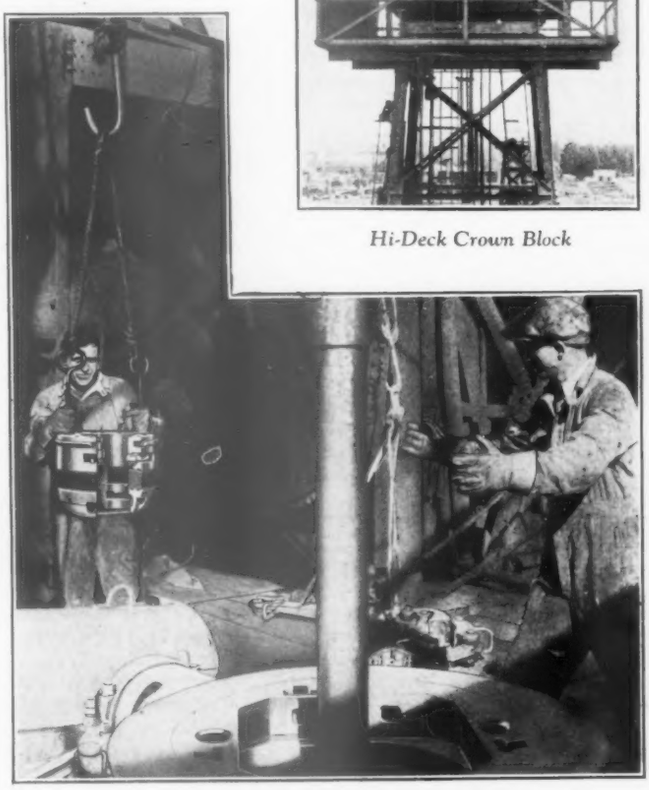
Extra long bodies give safe sure grip without crimping or weakening pipe; dull liners are easily replaced with new sharp ones at small cost. Wide loop handles prevent crushed fingers.

CAM PUMPING UNIT

Produces correct *slow speed* —as low as 1.3 strokes per minute—which secures maximum oil recovery from small or moderate producing wells. Reduces power consumption, and wear and replacement costs on all pumping equipment.

PIPE SLOTTER

Cuts 60 clean, accurate slots per hour in screen pipe; slots twice as wide inside as outside, so that sand passes freely without clogging slots. Longitudinal, cold-cut slots allow pipe to retain maximum bending and pulling strength.



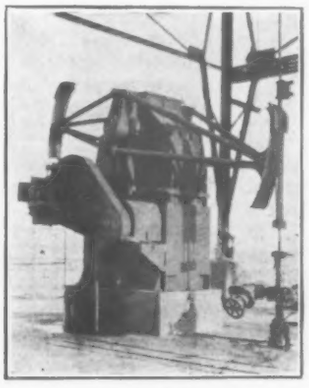
The Hosmer Blowout Preventer packing assembly is snapped around the pipe, locking automatically; pressure is held by raising or lowering the string of pipe to the first tool joint or coupling

TOOL CO.

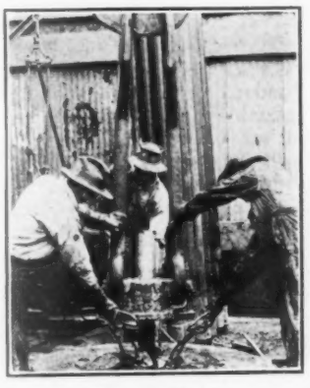
J&L PIPE B-R

Los Angeles, California

Baash-Ross Pipe Slotter in South America



Cam Pumping Unit



Rotary Slips

Oil Weekly, January 31, 1930

East Texas; and 63 under way in South Arkansas. Of the latter totals 106 were actually drilling in North Louisiana; 11 were active in East Texas; and 49 were active in South Arkansas. The Arkansas figures do not include about 15 wildcat operations scattered through Central and Northwest Arkansas.

While Arkansas showed a 50 per cent decline in drilling permits falling from 331 in 1928 to 165 in 1929, Louisiana showed a 40 per cent gain in 1929 over the preceding 12 months, there being a total of 931 to drill in Louisiana in 1929 as compared to 674 to drill in 1928. Total Louisiana permits for all purposes in 1929 including 89 to deepen were 1634 as compared to 1379 for all purposes in 1928, including 72 to deepen. The Louisiana totals also include the coastal fields in South Louisiana.

Pipe Lines

Pipe line construction most of it for gas lines, was the largest during 1929 aht it has been in this territory since the peak of Smackover.

The oil pipe line story can be quickly told. The Texas Pipe Line Company was the first to tie in at Mount Holly for its output, this being a four-inch line to its Louann station in Smackover. Then when Houston Oil Company took over the McDonald holdings in Mount Holly another 12-mile line was laid. Dixie Oil Company and Standard Oil Company of Louisiana laid about 10 miles of gathering lines in the Dixie field of Caddo Parish.

The largest amount of gathering line was laid to the older and newer parts of Zwolle, Standard Oil Company of Louisiana laid a 20-mile four-inch line to Gay's original discovery well in the west part of Zwolle in Section 14-7-14, from the older Pleasant Hill field. The same company made a Y-line of this in its first four-inch hookup to tse eatsern extension producer. Subsequently a six-inch line of 13 miles was laid directly south from Pleasant Hill to Bowman-Hicks A-1 in Section 34-8-12.

Three major pipe lines were completed during the year for gas from the Monroe and Richland fields. The largest of these is the Mississippi Valley Fuel Corporation's 22-inch line to St. Louis, Missouri, and intermediate points. Its length is approximately 470 miles and maximum capacity is 150 million cubic feet daily. Five compressor stations are along the route. Mississippi Valley Fuel Corporation is owned by the Standard Oil Company of New Jersey, Columbian Carbon Company, United Carbon Company, Electric Power and Light Company, Moody - Seagraves Company and the Palmer Corporation. These companies control approximately 200,000 acres in fee and leases in proven and semi-wildcat acreage in the two gas areas.

The main part of a line to Birmingham, Atlanta and Chattanooga from Monroe and Richland fields, has been completed. This line consists of 350 miles of 24-inch line with over 700 miles of smaller main line and laterals to serve intermediate and near-intermediate cities. This line also has a capacity of 150 million feet.

The third large line from the Monroe and Richland gas fields completed during 1929 was the 125 20-inch line of Arkansas Natural Gas Corporation from Waskom, Texas, to Monroe and Richland. A compressor station at Sterlington is one of the best-equipped in the Mid-Continent area. This line serves Shreveport and also provides gas for Dixie Gulf Gas Company to take at Waskom for south Texas cities.

Just as the year closed Arkansas Natural Gas Corporation completed 136 miles of six- and eight-inch line to 12 Northeast Texas towns. Fifty miles of the line is eight-inch branching off from the Shreveport-Little Rock line at Rogers Station, Caddo Parish, near Shreveport.

Arkansas Natural Gas Corporation also recently completed a six-inch line from Camden, Arkansas, to serve gas to Fordyce, Arkansas. This line is 25 miles in length. Another gas line project of this company completed during the year was a 10-inch line about 30 miles long from the Trees compressor station to serve an industrial plant at Okay, Arkansas. It also added 50 miles of 12½-inch line from El Dorado, Arkansas, to Trees, and acquired by purchase the Industrial Gas Company's 16-inch line and the Latex Construction Company's 12- and 14-inch line from Monroe to Camden, Arkansas, via El Dorado. This gives this company a large triangle of gas lines with Monroe as the apex of the triangle.

Early in 1929 Memphis Natural Gas Company's 18-inch line of 212 miles from Monroe to Memphis, Tennessee, of sixty million feet capacity was completed. Another early gas line of the year was Arkansas Natural Gas Corporation's 10-inch line 80 miles long from its newly opened Johnson County, Arkansas, gas field to Little Rock, where it hooks up with the line from Shreveport.

Two smaller gas line projects of the year were Interstate Natural Gas Company's looping of its 22-inch line from Monroe to New Orleans, five miles being between Wisner and Gilbert, Louisiana, and the remaining 20 miles being just north of Baton Rouge. Another project was the belting the Richland gas field by Palmer Corporation of a 12-inch line 125 miles in length to serve its gasoline plant at Alto, Richland Parish.

Tulsa. — Oil operators in meeting at Wichita voted to extend proration in the Voshel pool, McPherson County, Kansas, to March 15 on the basis of 25 and 50 per cent of their wells production. Derby Oil Company will be permitted to produce 50 per cent due to discovery rights. A meeting will be held March 10 for further agreement.

Operators commended the purchasing companies in not meeting crude price cut.

New Supervisor Confers With Monroe Operators

Shreveport, La.—Between 75 and 100 gas operators in the Monroe and Richland gas fields of North Louisiana held a conference at Monroe January 16, with Dr. J. A. Shaw, newly appointed supervisor of the minerals division of the Louisiana Conservation Commission at which problems with reference to casing regulations, amount of pressure on low pressure gas wells, testing and sealing of orifices plates and present regulations governing these items were discussed.

They discussed the matter of low pressure regulations with a view to revising the present low pressure methods where advisable.

The supervisor, who recently succeeded William F. Chisholm in that position, said that it was the policy of the present commission to enforce regulations now on the books unless it was found advisable to change them in accordance with the law. Dr. Shaw expressed gratification at the cooperative spirit manifested by the operators.

Dr. Shaw has advised operators in Cartersville-Sarepta oil field that holes deepened to the new oil horizon below 3150 feet from the gas sand at 3000 feet, must have a full string of casing set in them. One of the main objects of this regulation is to shut off any salt water that might be encountered between the two horizons, a salt water sand intervening between them, a log of tests in that area has disclosed.

Rules and regulations for drilling in Zwolle are expected to be promulgated soon. This is deemed necessary due to the fact that a sand formation immediately below the chalk rock formation in which Zwolle pay is found, is full of salt water. Operators unfamiliar with the field might unintentionally pass through the chalk rock into this sand without taking necessary precautions and enter the salt water sand with disastrous results to the adjacent chalk rock oil pay.

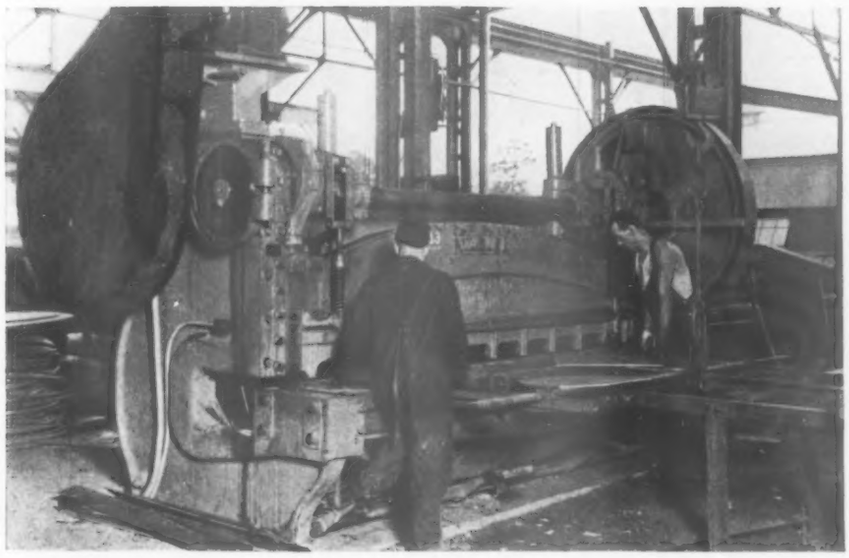
Tulsa.—The Mid-Continent Oil and Gas Association's board of directors has approved the following list of holidays for the general office forces of the membership oil companies:

New Year's Day; Decoration Day; Independence Day; Labor Day; Armistice Day; Thanksgiving Day; and Christmas Day.

The list was prepared through the medium of questionnaires sent member companies, in order that there might be uniformity among the oil companies in the general observance of holidays.

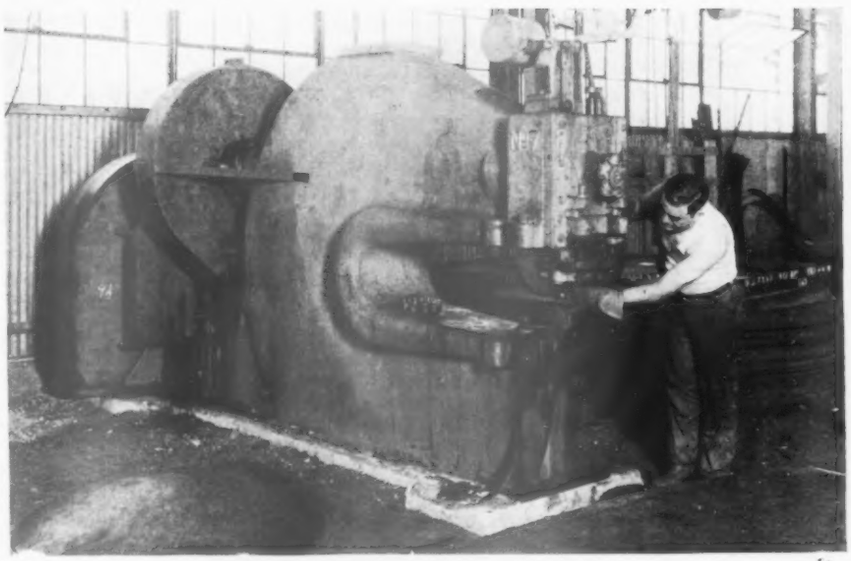
Washington, D. C.—Legislation authorizing the Secretary of the Interior to extend for an additional period of three years any oil or gas prospecting permit issued under the leasing act of 1920 was passed Monday, January 20, by the house of representatives. The bill has already passed the senate, and now goes to the president for approval.

EQUIPMENT
back of good service at *Wyatt's*



The Niagara shear, shown on the left, makes of plate cutting a simple operation. This machine has a gap of 10 feet and 6 inches and works very much on the principle of the housewife's scissors. This particular machine is located in the Houston plant.

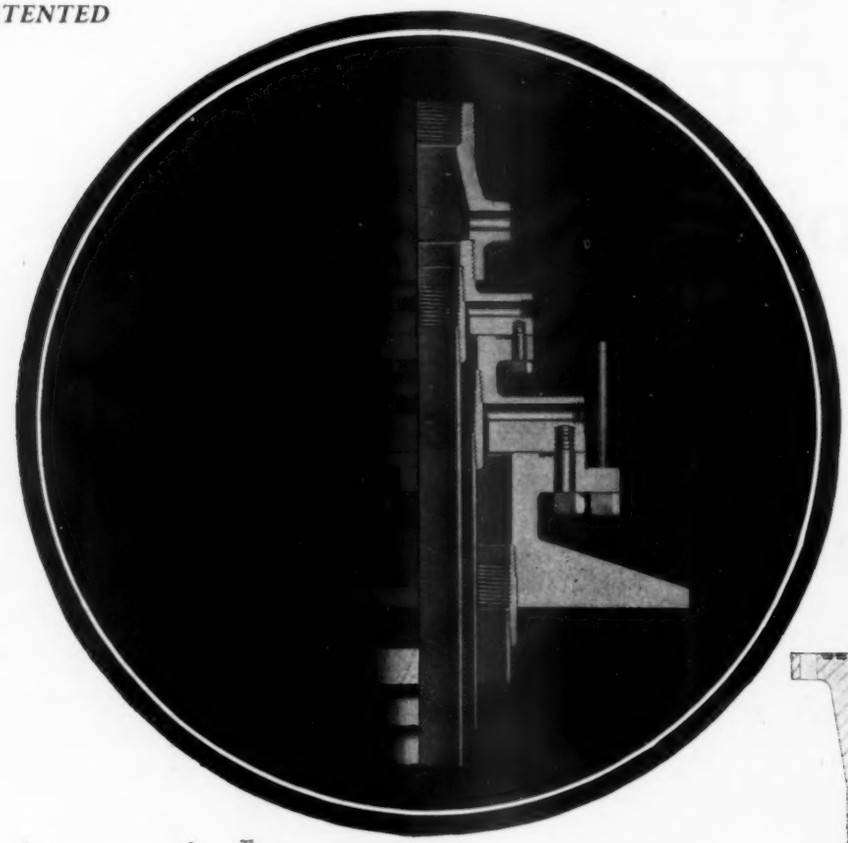
The proper spacing, matching and lining of holes vitally affects the service of fabricated metal. The Wyatt plants are equipped with a number of efficient punches. The one to the right has a 48 inch throat with a capacity of 1¼ inch holes through plates up to 1 inch thick.



WYATT METAL & BOILER WORKS
DALLAS *Capital $1,000,000* HOUSTON

Wyatt's **WYATT**
METAL & BOILER WORKS

FULLY PATENTED

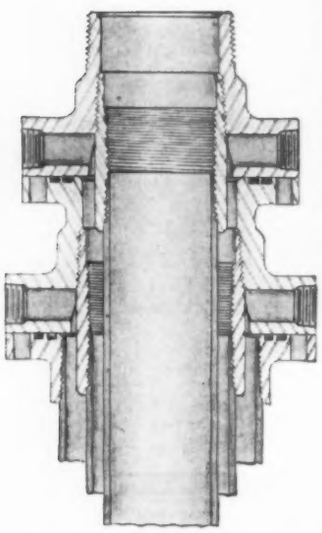


There's a *right* way and a *wrong* way of *CASING SUSPENSION*

For High Pressures

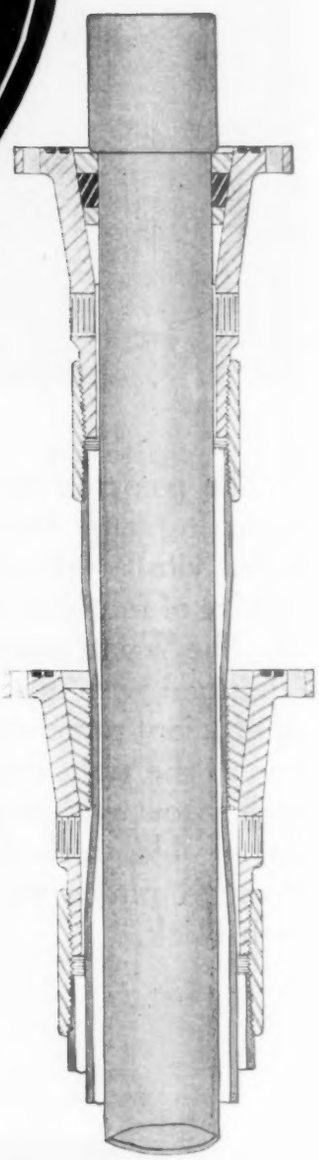
Deeper depths, heavier casing, heavier Christmas Tree fittings and greater pressures—call for the proper application of correct engineering principles in suspending casing and sealing the various strings. The use of Regan Control Flanges and Santa Fe Couplings removes strain from the casing. The weight is properly distributed. There are no compressing strains to cause the casing to warp or crimp. The weight is carried by the flanges which compress hydraulic packing that seals more tightly as more weight is imposed. Never more than one string is hung to a coupling. Each string of casing is suspended by its individual flange or spool. Regan Control Head equipment is made in various weights with test pressures up to 6,000 lbs.

Above view shows assembly of a Regan Control Head for pressures up to 6,000 lbs. and is equipped with a Landing Flange of a new design (optional with Bottom Flange) with notches to accomodate the tie rods. This Landing Flange rests upon a cement foundation.



THE RIGHT WAY

Detail view of a typical Regan hook-up showing the proper tying of casing. Note that no crimping stresses are imposed at any point.



THE WRONG WAY

Detail view of a method of suspending casing, depending upon slips to hold the heavily weighted string. A set of slips will suspend one string of casing but when two long strings are suspended on one set of slips, crimping of the larger string invariably results.

Regan Control Head
the correct application

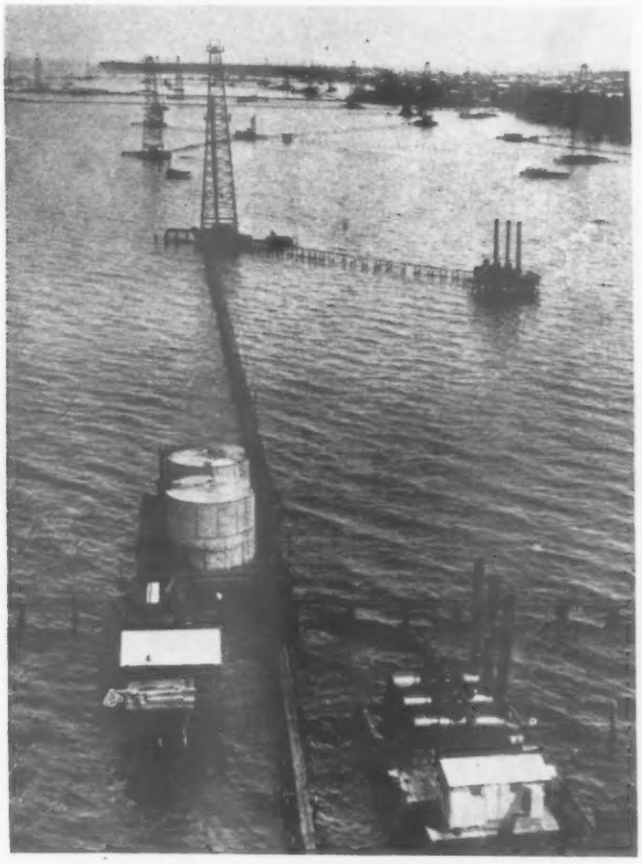
Regan
Forge & Engineering Co.
Oil Field Equipment
Plant and General Offices:
SAN PEDRO (Los Angeles Harbor) CALIFORNIA, U. S. A.

Representatives
Oklahoma City, Okla., 2420 W. 21st St.
Pecos, Texas P. O. Box 444

New York Office: 75 West St.
Wm. Braat, Manager

Mid-Continent Office: Dallas, Texas, 501-2 Marvin Bldg.

Representatives
Maracaibo, Venezulea, Wm. Adams, Care Amer. Consul



Venezuela Gulf Oil Company's Superior 53, flowing to Superior Pick-up Station No. 6, Maracaibo Lake. Typical of Maracaibo operations

South America Establishes New Production Record

By ROY E. LEIGH
Special Foreign Representative

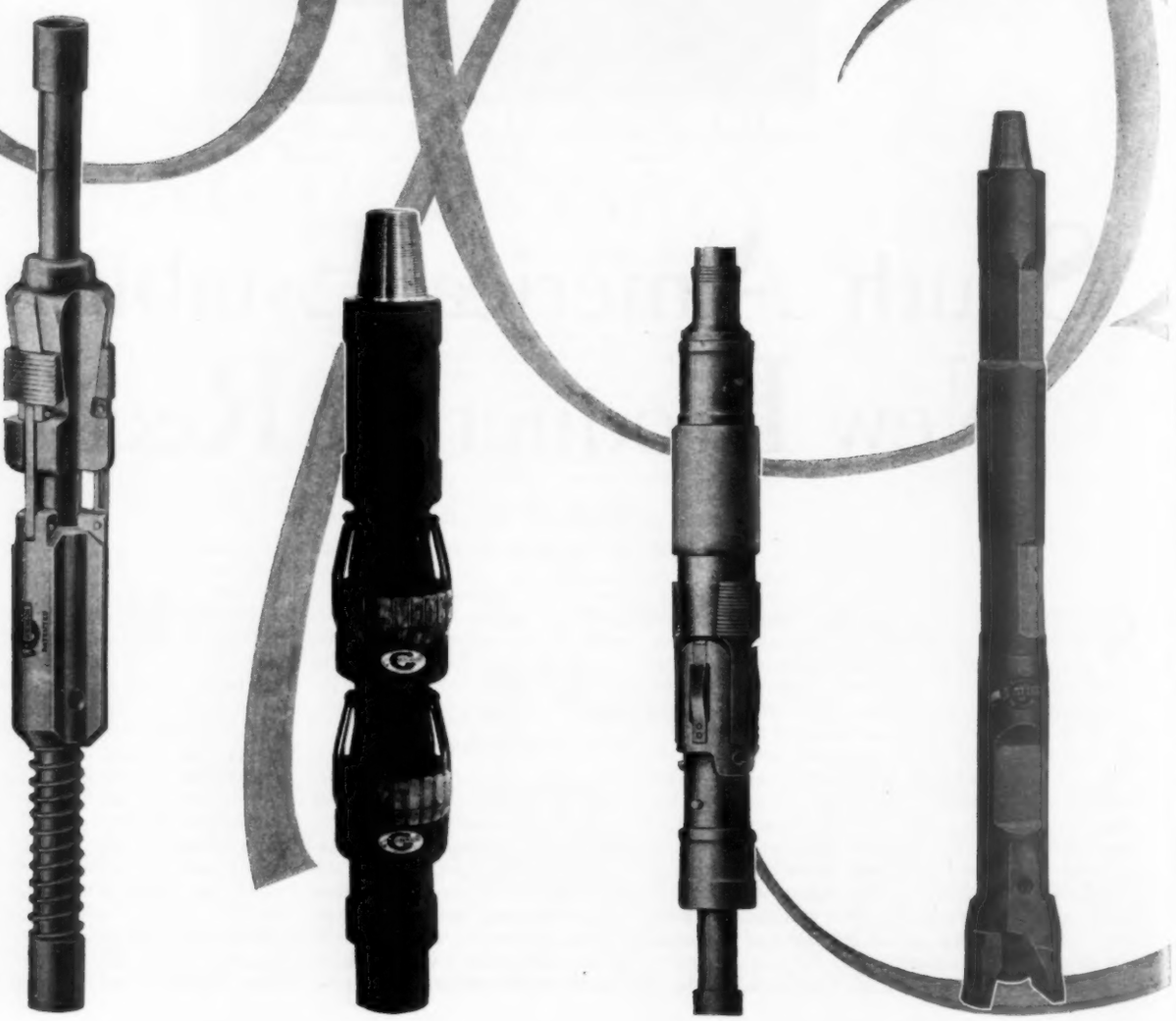
SOUTH America, a continent which is destined to supply an increasing proportion of the world's crude oil requirements as time goes on, produced more than 191 million barrels of oil during 1929. This represents an increase of 35 million barrels, or 22 per cent, over 1928, which was itself a banner year. Preliminary estimates, based upon conditions now existing and expected to continue throughout the current year indicate that 1930 production will show the smallest rate of increase in the history of South American operations. This arrested development, however, is not indicative of any depletion or exhaustion of the vast petroleum reserves existing in Venezuela, Colombia, Peru, Argentina, and elsewhere; rather it is a temporary condition brought about by the flooding of the world's markets by over-production in the United States.

Venezuela

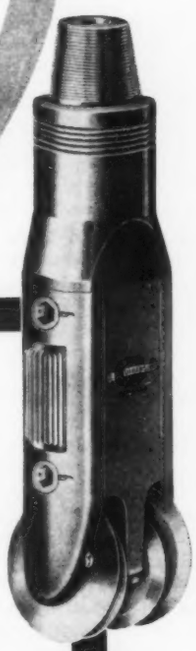
The dizzy rate of increase in Venezuelan production—71 per cent in 1927 and 68 per cent compounded in 1928—was arrested during 1929 by the operation of natural factors, such as the depression of world markets and limitations imposed upon shipping by such natural obstacles as the Maracaibo Bar, which is covered by only 12¼ feet of water at high tide. Entrance to Maracaibo Lake, now one of the greatest oil fields in the world, is made through a narrow channel crowded almost to its utmost capacity by 50 or 60 tankers and merchant vessels which must negotiate its treacherous length at each high tide occurring during day-light hours. Recognition of these natural obstacles was expressed in the terms of a gentlemen's agreement, to which all the major producers are parties, in accordance with which drilling, production, shipping, and tank construction were restrained within the physical limits of the Maracaibo "bottle-neck," the result being that Venezuelan production showed an increase of only 30 per cent during 1929. Preliminary figures recently made available in

Figures

the background for



have always been GUIBERSON *....Supremacy*



AN oil man likes to see figures and it has been Guiberson's privilege to show them always. Guiberson representatives will gladly trace for you the meteoric rise of the Guiberson Swab to first place in world sales, which it holds to-day and has held for years. They will show you efficiency figures as well as dollars-and-cents cheapness of the Guiberson Catcher as insurance for your tubing. They will quote barrels of production saved by using a Control Head Packer in a flowing well, computed from hundreds of instances. They will give you the dimensions, tensile strength and bearing surface which makes the Guiberson Underreamer the strongest in the world. They will give you the phenomenal drilling speeds and records of straightness of hole in endless cases, resulting in Guiberson devoting its entire manufacturing resources at one time to the production of Four Disc Reaming Rotary Bits, in a desperate effort to fill orders. Each and every Guiberson Tool is charted in its value to the operator.

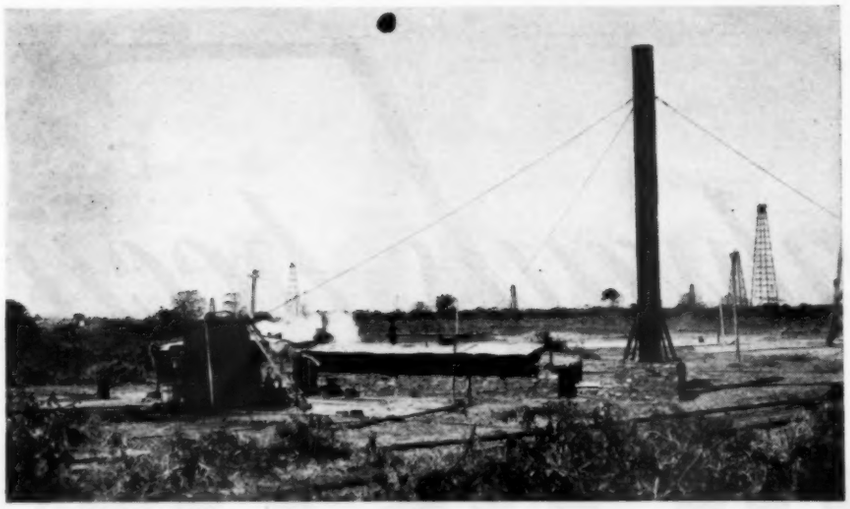
Guiberson records, of any sort, inspire the admiration and support of statisticians.

"Better Be Safe Than Sorry"

The Guiberson Corporation
Box 1106, Dallas, Texas
California Branch:
1506 Santa Fe Ave., Los Angeles
621 Kennedy Bldg., Tulsa
321 S. Osage St., Ponca City
506 Trust Bldg., Newark, O.

GUIBERSON

BETTER BE SAFE GUIBERSON THAN SORRY



There being no fresh water available, salt water is used in all of the boilers of the Anglo-Ecuadorean Oilfields, Ltd. The boilers, which are nothing more than two cylinders, one large one for the water enclosing a smaller one for the fire, are half buried in the ground and then bricked-up on all sides for insulation

advance of detailed audits of the year's accounts indicate that Venezuela's crude oil output reached a new high record of 137,794,574 barrels during 1929.

If market outlets could be found, and if shipping facilities were available, current production which averages around 400,000 barrels per day might be doubled in 1930. However, there is no indication that either of these restrictions will be removed during the year now current. The world's markets are no more in need of additional crude supplies than at the beginning of 1929, when the Maracaibo restriction agreement was negotiated; no new tankers have been ordered and no additional storage facilities are to be constructed in the lake-shore area, so far as can be learned. Under these conditions, producers are not likely to terminate the existing undertaking by which the operating units are restrained from drilling in undeveloped competitive areas. Operating officials have displayed a degree of reticence regarding the proposal to extend the restriction agreement through 1930; and it is believed that no definite agreement has as yet been reached. However, since all of the companies are affected by the same natural restrictive factors, it is likely that some such agreement, tacit or otherwise, may grow out of the meeting of officials now congregated in Maracaibo. A proposal to restrict 1930 production to 1929 limits is said to form the basis of preliminary discussion.

The La Paz and Concepcion fields, owned entirely by one Shell subsidiary and not subject to drainage by offset competition, remained shut in throughout 1929. The Mene Grande field, likewise unaffected by competitive influences, was operated at a very leisurely pace during the year just ended. Drilling was limited to two rigs throughout the greater part of the year; numbers of producing wells were closed in, and others pinched in to a small fraction of their potential capacity. More than two hundred producing wells were closed in at Lagunillas, La Rosa, and Ambrosio, fertile fields situated along the eastern shore of Maracaibo Lake; and others were beaned down to limit production and conserve gas pressure. Exploratory drilling continued in 10 new fields where discovery of oil has already been accomplished. Important new wells of commercial calibre were completed at Urumaco, Dabajuro, El Mene, Chichiriviche, Rio Tarra, Los Manueles, and Quirequire; and forward progress was made at Tatumo and in several wildcat areas situated west of the lake.

FORECAST OF 1930 PRODUCTION, SOUTH AMERICA

	Barrels
Venezuela	140,000,000
Colombia	20,385,000
Peru	14,693,000
Argentina	10,000,000
Trinidad	9,500,000
Ecuador	1,535,000
Total	196,113,000

Venezuelan Prospects for 1930

Persons familiar with conditions affecting Venezuelan operations do not anticipate any recurrence of competitive drilling campaigns, or any spectacular increase in production during 1930. It is true that at least three or four new fields will be opened up; but some of these are located inside the Maracaibo Bar and others are not expected to yield oil in any great volume during the first year of exploitation. Drilling probably will be continued at about the present rate, with a minimum of rigs in operation. Lake-shore areas which were the scene of hectic offset races in 1928 have been relieved of their high gas pressures; and, so long as development of virgin areas is to be postponed, completions will be of smaller calibre, adding less to the volume of potential production, than during 1928 and 1929.

Assuming that status quo will be maintained at La Paz, Concepcion, La Rosa, Ambrosio, Lagunillas, and Mene Grande, and considering that the handling of new production from Rio Tarra and Los Manueles by means of existing tanker facilities will but displace an equal volume of oil from Shell properties along the eastern shore, and realizing that export shipments from Chichiriviche and Quirequire cannot be commenced before mid-year, or thereabouts, students of the situation estimate that 1930 production will show an increase of only about five million barrels, reaching an aggregate total of approximately 140 million barrels during the year. A maximum increase of 10 per cent, or a total of 152 million barrels, has been mentioned as the highest figure to which Venezuelan production might mount under conditions expected to continue through 1930.

It is understood that the Standard Oil Company of California has no intention of opening the Urumaco field during the current year; but two new fields on the Buchivacoa Concession, now involved in rumors of a merger, might upset this estimate if opened up on commercial scale.

Colombia

Colombian production showed an increase of less than one-half million barrels in 1929 as compared to 1928, output having been maintained at about the level of pipe line capacity throughout both yearly periods. Neither the Infantas or La Cira structures has been fully developed, and an important new field was found at Mugrosa during the latter part of 1929. Considering the magnitude of any operation involving an increase of pipe line facilities between these fields and the coast—a route 360 miles long traversing the tropical jungles of the Magdalena Valley—and adverse market conditions affecting any additional oil which might be brought out of Colombia,

VENEZUELAN PRODUCTION—1929

Company—	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly Totals
Lago Pet.	3,477,873	3,083,218	3,233,446	3,205,257	3,157,734	3,207,302	2,722,780	2,766,018	2,829,063	2,836,785	2,893,890	3,324,290	36,737,656
Ven. Gulf	3,117,000	2,912,000	2,852,000	3,183,000	3,179,000	3,247,000	3,390,000	3,387,000	2,969,000	3,123,000	3,021,000	3,162,000	37,542,000
V. O. C.	4,103,720	3,607,811	3,790,306	3,894,294	4,021,487	3,839,835	3,829,513	4,052,509	3,783,870	3,679,722	3,438,939	3,901,783	45,943,789
Caribbean	633,733	550,004	632,307	1,281,507	1,469,493	1,598,400	1,174,293	1,205,296	1,521,090	1,704,380	1,674,030	1,666,901	15,111,434
B. C. O.	159,992	138,972	154,825	159,111	161,129	168,930	175,051	190,867	180,675	181,095	180,675	181,095	2,032,417
Bermudez	21,839	24,691	34,074	33,686	44,052	36,212	39,143	39,834	36,644	38,551	33,602	44,950	427,278
Total	11,514,157	10,316,696	10,696,958	11,756,855	12,032,895	12,097,679	11,330,780	11,641,524	11,320,342	11,563,533	11,242,136	12,281,019	137,794,574

HERCULES TOOLS

Standardized

for efficiency and greater safety

Because of a simplicity that is a result of years of study and practical oil field experience and due to the absolute protection they afford. Hercules Tools in their field have been recognized as the standard of efficiency, economy and safety. For sale by all leading supply houses. Write for fully descriptive catalogs and prices.

HERCULES FLOW HEAD

(Patent Pending)

Especially designed for high pressure flowing wells or air and gas lifts, and for wells that are being flooded.

HERCULES TUBING ROTATOR

(Patented)

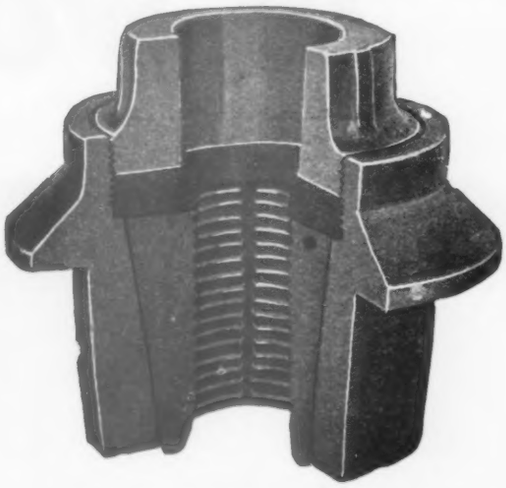
This Rotator lengthens the life of tubing by making it possible for one man to turn the tubing in the well, while the well is pumping, by changing the place of the rods wearing on the tubing.

HERCULES CASING HEAD

(Patent Pending)

The Hercules Casing Head is equipped with slips to support the inside string of casing, therefore does away with clamps, spiders, etc., and takes the place of a braden head on a well. It will safely carry twice the weight of the longest string of pipe on which it is used. Has two 3" side outlets. This casing head can be repacked without lifting the inside string of tubing as the rubber packing rests on top of the slips and is compressed by means of a split packing nut that screws down into the top of the casing head. It is made of electric cast steel for wells with a pressure up to 1000 lbs., and of forged steel for high pressure wells ranging upward to 3000 lbs. Easy to install.

HERCULES CASING HEAD (*Cross Section View*)



HERCULES TUBING HANGER

(Patent Pending)

The Hercules Tubing Hanger supports the tubing at casing head by means of three slips which completely encircle the tubing. (These slips cannot drop through hanger into the well.) It is made of forged steel and is non-porous—will safely carry the weight of the longest string of tubing and due to its gas-tight method of packing will hold any pressure used for either air or gas lift. The packing rests on top of the slips and is compressed by means of a packing nut that screws down in the top of the hanger, therefore you do not have to disconnect the well or lift the tubing to repack the hanger. It sets down in the casing head out of the way of equipment used on top of the well. All parts are interchangeable.

HERCULES TUBING ANCHOR

(Patened)

A Tubing Anchor that gives positive tubing protection while tubing is in the well or when being pulled from the well. Can always be controlled at the top of the well. Tubing cannot drop when equipped with a Hercules Anchor.

HERCULES TUBING SPIDER

(Patened)

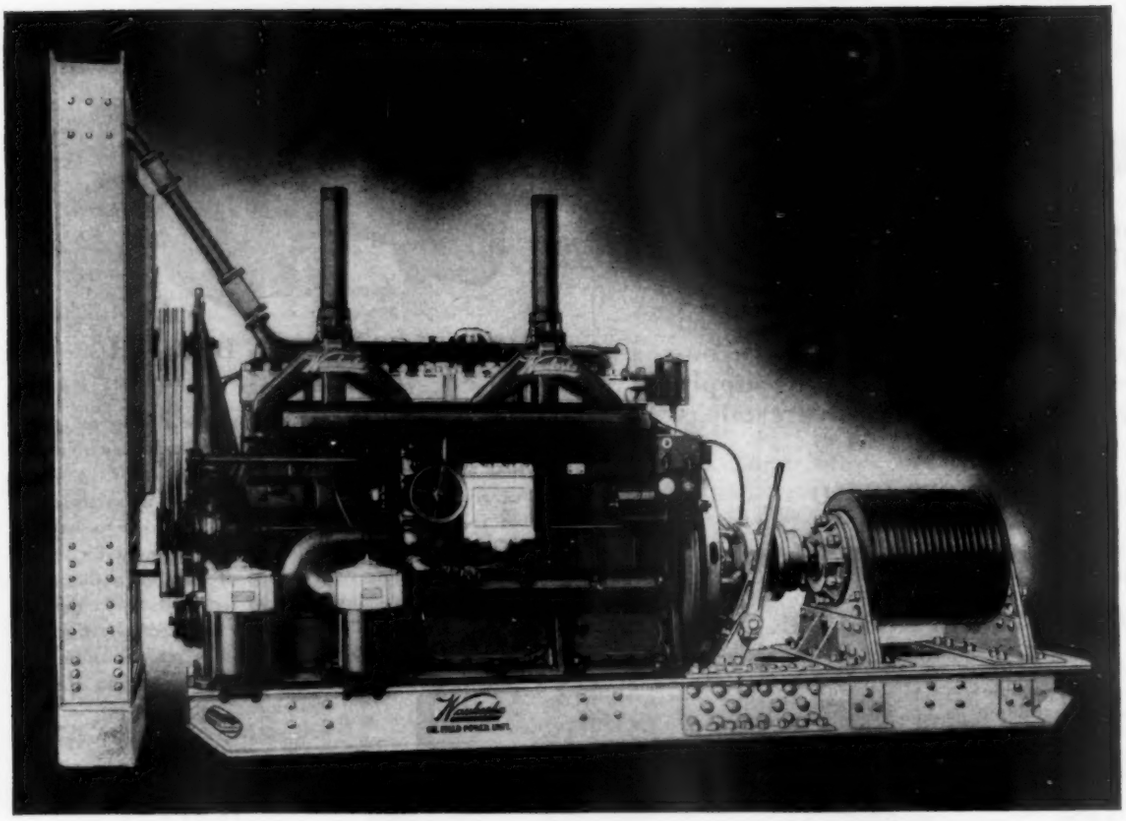
The Hercules Tubing Spider, the simplest, safest and most positive tubing spider, is designed for running and pulling the tubing. Regular or upset collars pass through slips without interference.

Hercules Tool Company

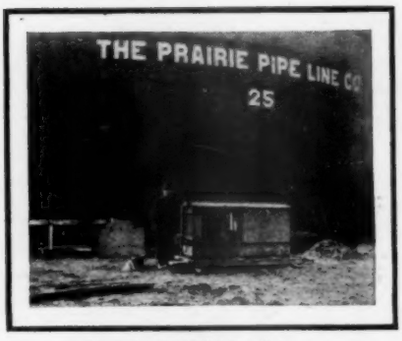
Tulsa, Oklahoma

Phone 3-2358 P. O. Box 286 Palace Bldg.

In World-Wide



Core Drill, Stillwater, Okla



Lincoln Arc Welder driven by Waukesha Engine.

Portable rig, with draw works—Waukesha driven.

WAUKESHA

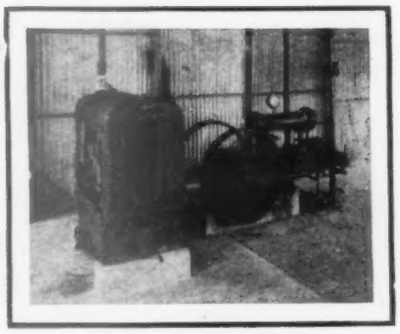
Demand

Wherever power is needed in producing petroleum

IN Baku or Texas . . . . Columbia or California . . . . Sumatra or the Seminole . . . . Venezuela or Mexico—you'll find Waukesha Oil Field Power Units.

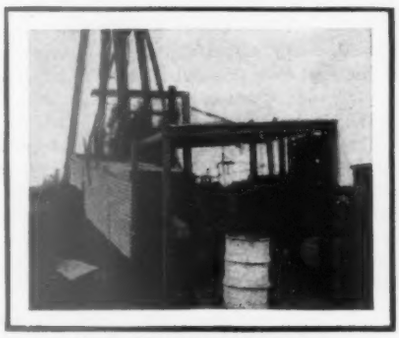
Every day . . . . year in and year out . . . . they are running rotary rigs, cable tool rigs, pumps, air compressors, pick-up pumps, electric generators, hoists, electric welders, core drills, spudders and many other power driven machines. The unfailing reliability, greater economy of fuel as well as water, ready portability and ease of hook-up of Waukesha units, regardless of size, has made them the choice of successful oil men the world over.

You can get Waukesha Oil Field Power Units in a range from 20 hp. to 275 hp. Write for descriptive bulletins. *Oil Industry Equipment Division, Waukesha Motor Company, Waukesha, Wisconsin. Offices: New York, 8 West 40th Street; San Francisco, 7 Front Street. In the Oil Fields: C. F. Camp Co., Tulsa; Portable Rig Co., Houston; Bradford Supply Co., Bradford, Pa.; Waukesha Industrial Engine Sales & Service Co., 46 Natoma Street, San Francisco, Calif., and 749 Turner Street, Los Angeles, Calif.*



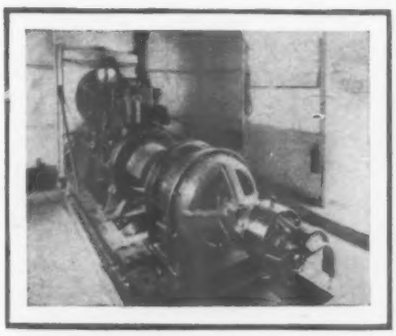
35 hp. Compressor Engine at Little River, Okla.

Rotary and Draw Works, San Antonio, Texas



Power Unit on skids, driving Spudder Rig, Thurber, Texas

Wildcat drilling at Glasscock Co., Texas . . . . two 120 hp. engines.

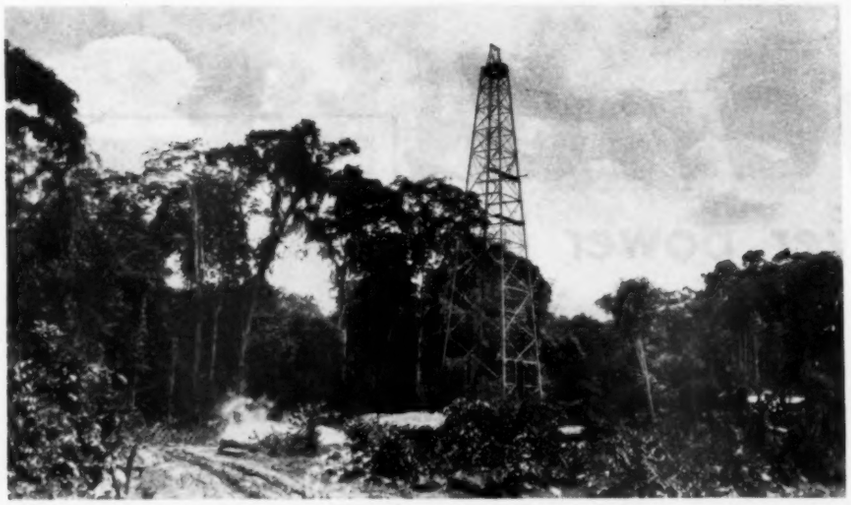


Waukesha Electric-Generator set.

Air Lift Plant at Bowlegs, Okla.

WAUKESHA ENGINES

307



South American Gulf Oil Company's Ordonez 2, a wildcat well being drilled on the properties of the Colombia Syndicate, about 30 miles northeast from the Aguas Clares District, in Colombia

it is not likely that 1930 will bring about any substantial increase in production.

Adverse legislative conditions and confiscatory tactics on the part of governmental officials have caused the withdrawal recently of operating personnel representing two major companies. It is not likely that curative legislation expected to be enacted during 1930 can become effective in time to allow the resumption of activities on a scale likely to affect this forecast.

West Coast Fields

Preliminary totals containing less than 10 per cent of estimated figures show that Peruvian production reached a total of 13,357,517 barrels during 1929. This indicates a normal increase of 11.5 per cent, roughly representative of the increase in consumption in the West Coast and Canadian markets supplied from Peruvian and Ecuadorian sources. Neither of the concessions operated by International Peroleum Company, Ltd., and Lobitos Oilfields, Ltd., has been fully developed; and further gradual increases are to be expected as time goes on. Production was restricted during 1929 in about the same proportion as elsewhere in the western hemisphere.

Ecuadorian production showed a healthy increase of 37 per cent, totaling approximately 1,394,000 barrels, according to preliminary estimates made available in advance of final reports for 1929. This increase was brought about by the extension of the Ancon or Santa Elena field and by improvements in drilling technic following the adoption of rotary equipment by Anglo-Ecuadorian Oilfields, Ltd., which formerly had used Austro-Galician percussion tools exclusively. Further increases are expected during 1930.

Bolivia

Although several prospectively important discoveries of light oil have been made in Southern Bolivia, exploitation has not yet been commenced in any of these fields. Production during 1929 was limited to fuel oil consumed in drilling operations, of which no exact record is available.

Argentina

Operations in Argentina, as in Colombia, are retarded by an unfavorable legislative situation. Politicians are advocating the nationalization of the petroleum industry, in accordance with a project of law now pending in the senate; and governmental officials, anticipating the expropriation of private interests, are withholding permits for the construction of refineries, pipe lines, and other facilities required for the expansion of the industry. If and when the threat of nationalization is removed, Argentine production should show a healthy growth, as the consumption of petroleum products in the River Plate market is far in excess of local crude oil production.

Reliable production statistics are not yet available from Argentina, due to the practice of the Y. P. F., governmental agency which ranks as the largest oil producer in the country, of waiting until late in the year to cast up its accounts and publish its *Memoria*. Preliminary estimates indicate that the total will run between nine and 10 million barrels, or about the same as last year.

Trinidad

Production in Trinidad was expanded in conservative British fashion during 1929, as in every year throughout the last decade. The yearly total, including an estimated figure for the month of December, approximates 8,593,000 barrels, or 11.8 per cent more than during the previous year. This prosperous colony has not yet reached its peak of potential production, and the expansion of the oil industry is expected to continue in accordance with conservative policies for several years to come. Operators are protected by the British preferential tariff which restricts or forbids the introduction of American petroleum products into British new-world possessions; and Trinidad crude commands a very favorable price, in comparison with other Caribbean oils.

COLOMBIA 1929

Month	Production	Shipments
January	1,674,245	1,605,048
February	1,499,326	1,197,833
March	1,677,011	1,731,099
April	1,623,448	1,627,355
May	1,779,877	1,185,323
June	1,741,115	1,526,227
July	1,723,058	1,711,045
August	1,758,039	1,648,893
September	1,689,122	1,594,487
October	1,814,112	1,309,255
November	1,704,387	1,409,323
December	1,700,808	2,054,593
Total	20,384,548	18,600,481

TRINIDAD PRODUCTION 1929

Month	Barrels
January	704,569
February	675,090
March	777,257
April	719,926
May	740,432
June	718,810
July	752,265
August	702,010
September	686,648
October	726,355
November	684,447
December	*705,000
Total	8,592,809

*Estimated.

Combination railway and automobile highway, International Petroleum Company's Negritos Field, in Peru

Endlessly useful—

THE "Caterpillar" Tractor, equipped with an All Steel Products Company Side Boom, is being used by the Rayle Construction Company on the Texas Empire Line at Oolagah, Oklahoma. Here are wide tracks to go anywhere —power to handle the pipe when a new line is to be laid, or an old one raised for cleaning. Here is flexibility and versatility — the nimble willingness that makes "Caterpillar" track-type Tractors indispensable out in the field.

Prices—f. o. b. Peoria, Illinois

TEN . .	$1125	TWENTY	$1975
FIFTEEN .	$1500	THIRTY .	$2475
SIXTY			$4300

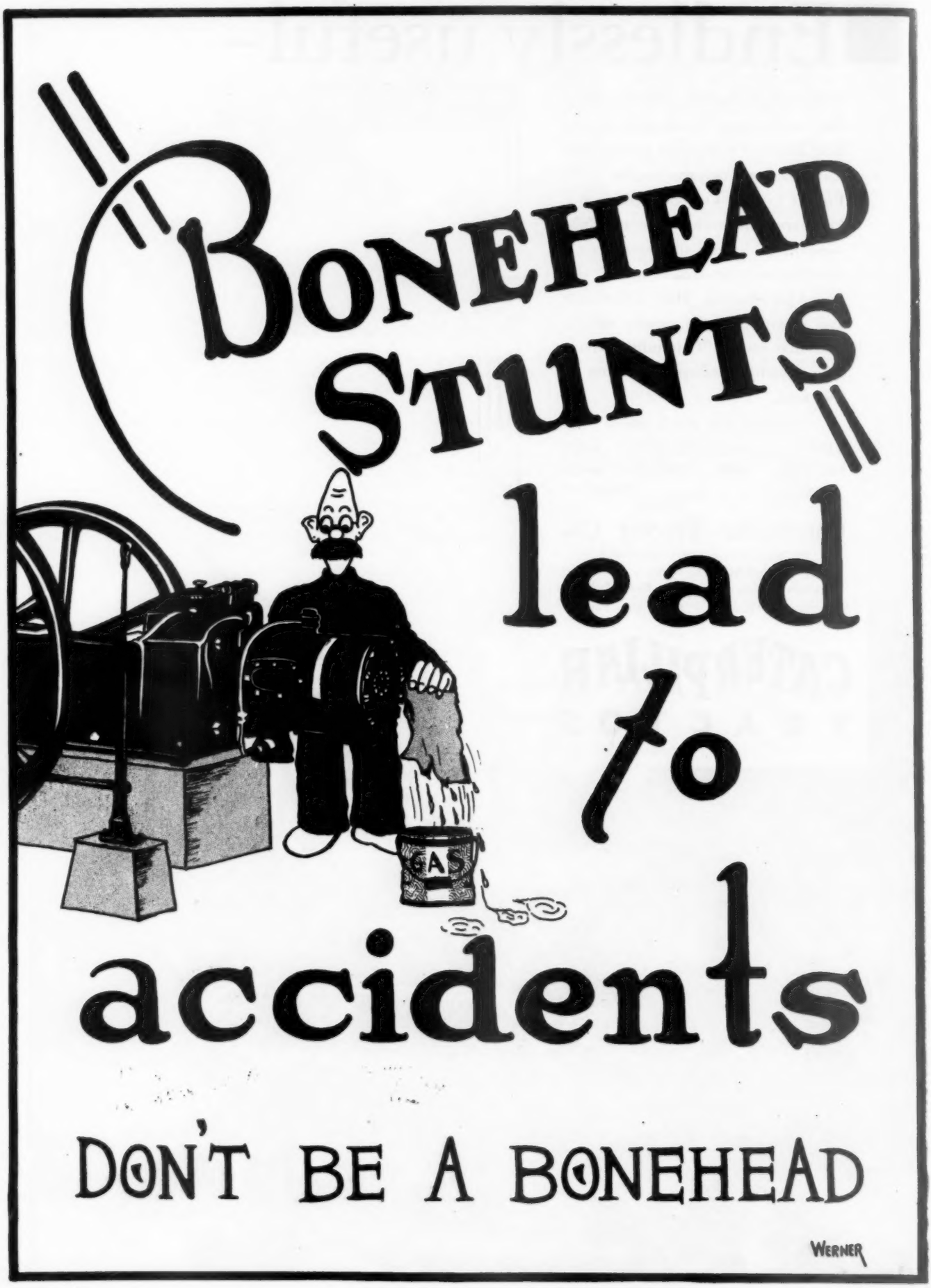
Caterpillar Tractor Co.

PEORIA, ILL. *and* SAN LEANDRO, CALIF., U. S. A.

Track-type Tractors Combines Road Machinery

(There's a "Caterpillar" Dealer Near You)

CATERPILLAR
REG. U.S. PAT. OFF.
TRACTOR


BONEHEAD STUNTS
lead to
accidents
DON'T BE A BONEHEAD
WERNER

Accident Prevention

in the Petroleum Industry is becoming more effective each year.

The same regard for the Welfare of others that has made this great work effective in the Petroleum Industry will reduce accidents on the streets and highways.

Let us as drivers of motor vehicles so emphasize our regards for the rights of others using the highways, that the Petroleum Industry will become universally recognized as CAUTIOUS DRIVERS.

Safety Section

MID-CONTINENT OIL AND GAS ASSOCIATION

TULSA, OKLAHOMA

(This Space Contributed by Members of the Association)

Three Stores

The Houston Store, and main office of the Rob't J. Miller Co. From here service is rendered the Texas and Louisiana Gulf Coast.

The Big Spring Store and those in charge. From here West Texas and New Mexico are given speedy service.

Weather conditions don't keep the boys from rendering customary Rob't J. Miller service to our friends in the Texas Panhandle. This district is served from our Borger Store shown above.

FLUID PACKED PUMP
FPP

to Serve You ~ *better*..

The wide diversity of elements entering into the purchase of an oil well pump crystallize themselves into three distinct stages, namely, the make of pump, how it will perform and the service obtainable from the seller. To this final stage the Robert J. Miller Co. devotes its entire resources.

To efficiently serve our many customers throughout Texas, New Mexico and Southern Louisiana we maintain three stores, each a complete service unit functioning solely for your convenience.

The continuous performance of pumping wells is of utmost importance—AND to this cause the Robert J. Miller Co. dedicates its three stores and their entire services.

HOUSTON

12 Louisiana Street — Phone, Preston 2841

ROBT. J. MILLER, *President*

BIG SPRING
R. W. Harr,
Phone 1177

BORGER
V. A. Williams
Penn Hotel Bldg.

ROBERT J. MILLER CO.

EXCLUSIVE DISTRIBUTORS for FLUID PACKED PUMPS in TEXAS NEW MEXICO SO. LOUISIANA

Three Stores in Texas ~ Houston · Borger · Big Spring

Grosny Oil Field — A general view of the older portion

Russian Oil Production *in* 1929 Exceeded All Records

By ROY E. LEIGH
Special Foreign Representative

THE Azneft, Grozneft, Embaneft, Sakhalinneft, Chelekenneft, Uzbekneft, and other Soviet oil trusts were merged during December into one giant organization which will be known as the All Union Concern of All Oil Industry, and which will have complete control of the production, transportation, refining, and distribution of petroleum and petroleum products throughout the Soviet Union, as well as of export sales of petroleum products throughout the world. The purpose of the merger, it is announced, is to concentrate, co-ordinate, and control geological investigations, drilling, production, pipe line, refining, and financial operations.

Soviets Expanding on Five-Year Plan

Crude oil production in the Union of Socialist Soviet Republics reached a new high record of 13,634,000[1] metric tons, or approximately 100,890,000 barrels, during the fiscal year ended September 30, 1929. This represents an increase of 17.6 per cent over the previous year, and 50 per cent over pre-war production, which was recorded as 67,400,000 barrels in 1913.

The Soviet oil industry is now fairly started on the second year of a five-year plan of expansion promulgated by the Supreme Economic Council beginning October 1, 1928. Production during the fiscal year 1928-29 exceeded the estimates contemplated in the plan by nearly 6,000,000 barrels. Production during the second year of the plan has been fixed at 16,200,000 metric tons, or 17 per cent over that of last year. The plan, which has been revised from time to time as operations gained headway, contemplates the doubling of the industrial output of the country during the period October 1, 1928, to September 30, 1933; and Russian oil production is expected to reach a total of 252,000,000 to 288,000,000 barrels during the fiscal year ending on the latter date.

RUSSIAN CRUDE OIL PRODUCTION DURING CALENDAR YEAR 1929[2]

Month	Barrels
January	7,973,877
February	6,778,461
March	7,186,917
April	7,277,676
May	8,862,199
June	8,528,040
July	9,353,880
August	9,407,160
September	9,094,680
October	9,152,280
November	9,008,200
December	9,315,000

[2]NOTE— January to June figures, inclusive, from official sources, as are also continental Russian figures for July to November, inclusive. Sakhalin Island production estimated at 13,150 metric tons per month and added to continental figures to form the totals for the last half of the year. December figures estimated in full. Coefficient of conversion—1 metric ton assumed to be equivalent to 7.2 barrels of 42 U. S. gallons.

Drilling operations also slightly exceeded the plan last year, reaching a total of more than 1,400,000 feet, or 17 per cent more than during the preceding year. About 19 per cent of drilling activity, 264,000 feet, was devoted to wildcatting, with the result that a promising new field was found near the city of Perm, at the junction of the Chusovaya and Kama Rivers, in the central Urals and about 1250 miles east of Moscow. No oil had previously been reported there.

The discovery well averaged around 185 barrels of oil per day, flowing, on a 10-day test; and has been stabilized at a daily rate of 145 barrels, with a pressure of six atmospheres. Permian oil has a specific gravity of .957, or 16° A. P. I.

Soviet engineers estimate that this newly-found reserve contains something like 1,750,000,000 barrels of oil; and plans have been drawn for the commencement of de-

[1]Statistics quoted in this article are from official Soviet sources.

Locomotive Type Drain Valves

IDEAL-AJAX Roller Bearing Engine in the St. Louis, Okla. Field.

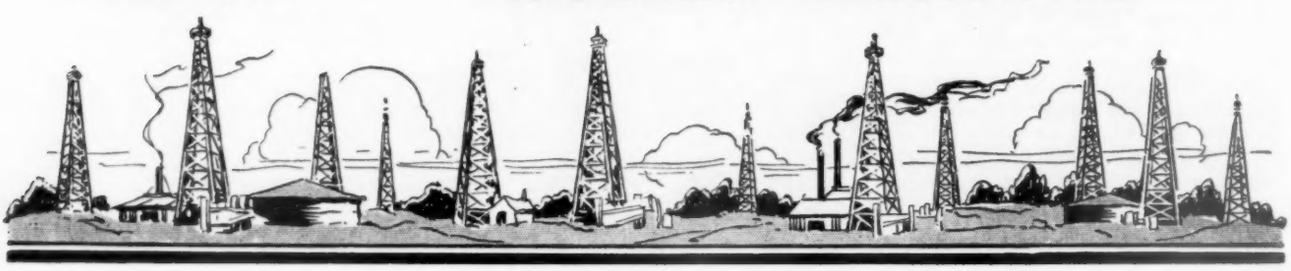
FOR over fifty-three years AJAX and IDEAL-AJAX Engines have been stepped-up with features that might be compared with the improvement in locomotive engine design and practice.

The newest IDEAL-AJAX for example has piston valves with Locomotive Type Drain Cocks operated from the derrick.

Ask the National Supply Company man for full details.

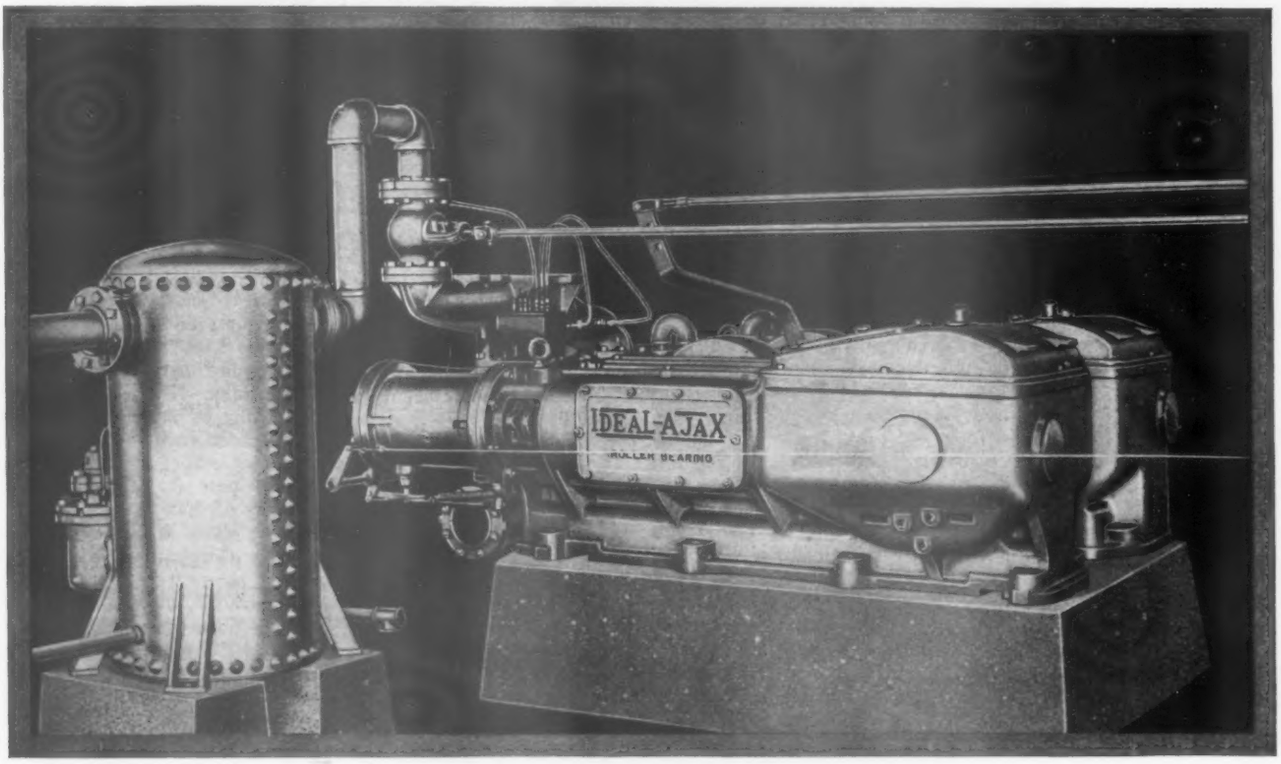
IDEAL-AJAX

ROLLER BEARING



Give IDEAL-AJAX New Power

AJAX and IDEAL-AJAX Engines account for about 70% of all steam drilling operations. This development is logical with over a half century behind Ajax standing as the largest manufacturers of this type of equipment in the world.

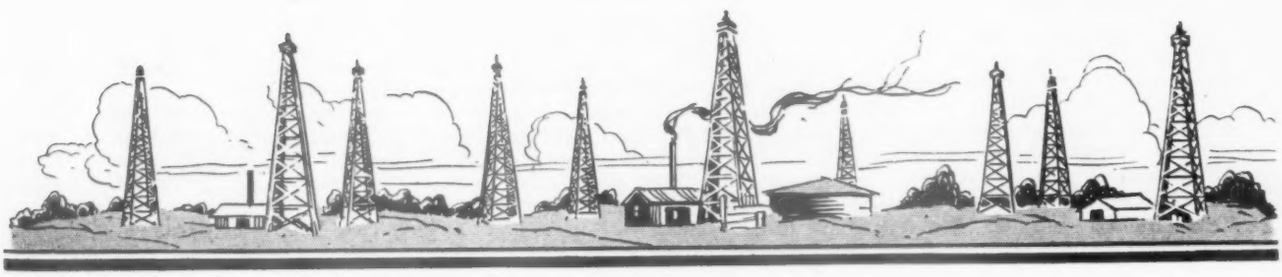


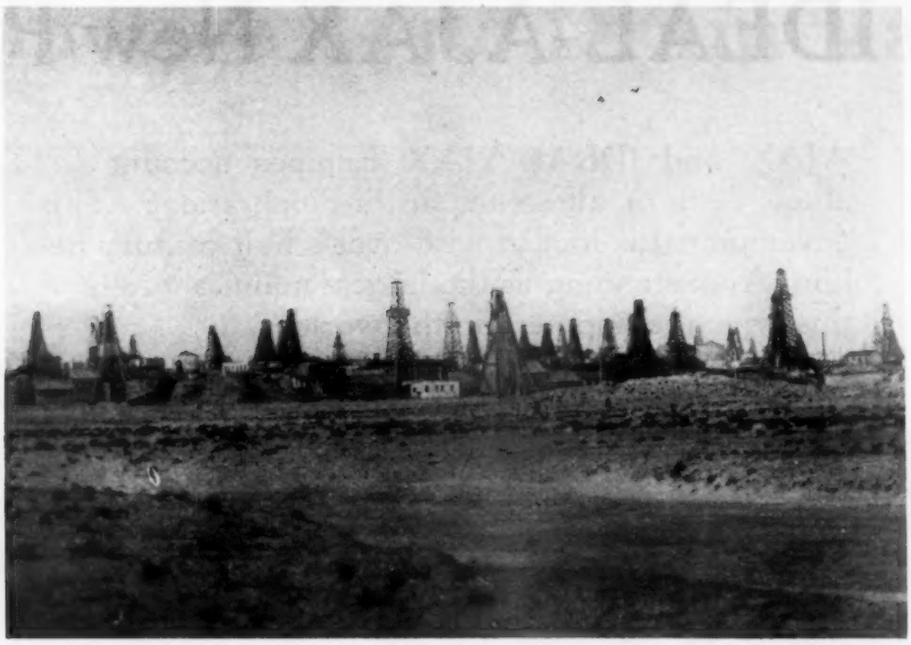
Made by AJAX IRON WORKS, Corry, Pa.

DISTRIBUTED BY

THE NATIONAL SUPPLY COMPANIES

In Every NSCO *Oil Field*





Recently developed section of Baku field

velopment on a large scale. At the end of the fiscal year, five wells had been drilled, and the program for the current year calls for the increase of this number to 50.

The oil-bearing stratum is a porous limestone, 200 feet in thickness and is found at a depth of approximately 1200 feet.

Other Reserves

Important deep sand discoveries have been made during recent months in the Baku region. According to a pamphlet entitled *Petroleum Industry of the U. S. S. R.,* published by the Amtorg Trading Corporation of New York, Soviet purchasing agency in the United States,

"The total oil reserves of the U. S. S. R. are estimated at over 4.8 billion tons (35½ billion barrels). Beside the districts which have been exploited, there are a a number of oil regions which are almost entirely undeveloped. These include the Ural-Emba region, the Island of Cheleken, in the Caspian, the Shirak district, in the Caucasus, the Nefte-Dag district, on the southeastern shore of the Caspian Sea, Kamchatka, the Island of Sakhalin, the Ukhta district of the north Urals, and several other districts."

The original five-year plan involved capital investments in the petroleum industry of from 850 to 900 million dollars. This total recently has been raised to a figure exceeding one billion dollars. Part of this sum will be expended in the expansion of production in existing fields and toward modernizing machinery and methods in all branches of the industry; but it is said that the greater part will be spent in prospecting work for the development of new oil reserves and for the construction of refining facilities.

Capital investments during the current fiscal year are expected to total $140,000,000. Pursuant to geological and geophysical researches made in recent years, it is proposed to commence explanatory drilling in 10 new regions, which are regarded as likely to be productive of oil. It is said that operations will be pushed in Sakhalin, the Urals, Turkestan, Uzbekistan, the Ukhta district, and other undeveloped regions.

Pipe Lines

The Grozny-Taupse pipe line, which together with auxiliary equipment and refineries and other structures at its terminus, represents an outlay of $30,000,000, was completed during the last fiscal year and is now in operation. It is 10 inches in diameter, 390 miles long, and has a capacity of 27,000 barrels per day, which will be increased in the near future. Six pumping stations are now in operation, but five more are to be added.

The new line from Baku, on the Caspian Sea, to Batum, on the Black Sea, is in partial operation and is expected to be completed during the current year. It is 10 inches in diameter, 535 miles in length, and has a capacity of 34,500 barrels per day. The project includes 13 pumping stations, and will cost $35,000,000 when completed.

The old eight-inch kerosene line from Baku to Batum has recently been overhauled and rebuilt to transport crude oil, to which service it will shortly be converted. Two other lines over the same route have been projected.

Plans are now being drawn and considered for the construction of a new pipe line approximately 980 miles in length extending from a point on the Caspian Sea near the mouth of the Volga River in a northwesterly direction to Moscow. Under the plan now being studied, oil will be transported in tank steamers from Baku and Grozny to the mouth of the Volga, and thence by pipe line to the capital.

Refineries having an aggregate capacity of 41,500 barrels per day are being constructed at Tuapse and Batum, the Black Sea termini of these lines; and, in addition, considerable construction work is in progress at Baku, Grozny, and Emba. Three pipe stills of 20,000 barrels daily capacity have been built at Baku, two at Grozny with an output of 14,000 barrels per day, and one at Nizhni-Novgorod with a capacity of 3000 barrels daily.

One of these plants at Grozny was built by the Graver Corporation, of Chicago. Two cracking plants were erected by the Vickers organization, of England, and 14 other cracking units were bought of the Foster-Wheeler Corporation, of New York, and the Winkler Koch Company, of Wichita, Kansas. All of these are now nearing completion.

The state Bank of the U. S. S. R., in an issue of its Economic Survey, devoted chiefly to the oil industry of the country, publishes the following figures comparing the sales achievements of the Soviet Naphtha Syndicate during the fiscal year 1928-29 with those of the year 1927-28.

Domestic Market

Products	1928-29 (Metric Tons)	1927-28 (Metric Tons)
Fuel oil	4,825,000	4,436,000
Kerosene	1,566,000	1,190,000
Gas oil and Diesel oil	744,000	643,000
Lubricating oil	285,000	209,000
Motor spirit	129,400	94,300
Total sales	7,775,000	6,770,000

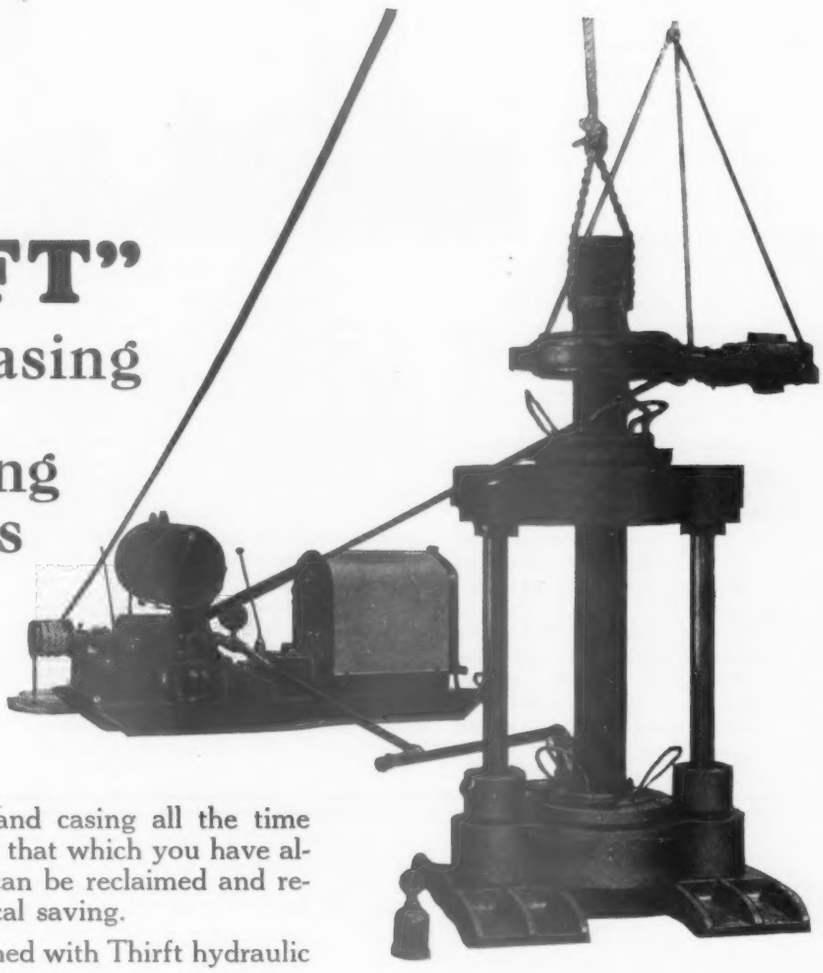
Exports

Kerosene	778,000	706,000
Motor spirit and aviation gasoline	1,036,000	771,000
Lubricating oil	262,000	233,000
Fuel oil	1,386,500	915,000
Crude oil	156,000	156,000
Total sales	3,618,500	2,781,500

This authority points out that "The

SAVE Thousands of Dollars

"THRIFT"
Hydraulic Casing *and* Pipe Pulling Machines



Why buy new pipe and casing all the time when a large quantity of that which you have already bought and used can be reclaimed and reused at a great economical saving.

This can be accomplished with Thirft hydraulic casing pulling machines.

Operators and companies everywhere are utilizing these machines to reduce operating costs.

Thrift machines are complete operating units in themselves and require no auxiliary equipment.

A list of users as shown below will substantiate this.

1. Ohio Oil Company, Finlay, Ohio.
2. Freeport Sulphur Company, Freeport, Texas.
3. Vacuum Oil Company, Houston, Texas.
4. Burmah Oil Co., Burma, India.
5. C. H. Elstner, Tampico, Mexico.
6. N. H. Goss, Tampico, Mexico.
7. Jensen-Anderson, Ranger, Texas.
8. Jensen-Carley, Seminole, Oklahoma.
9. W. H. Vreeland, Augusta, Kansas.
10. Reclamation Engineering Co., Tulsa, Oklahoma.
11. Northwest Casing Pullers, Wichita Falls, Texas.
12. Patterson & Neighbors, El Dorado, Arkansas.
13. Ridge-Womack, Oil City, Louisiana.
14. McGinley-Randall Supply Co., Bowling Green, Kentucky.
15. Hydraulic Casing Pulling Co., Mexia, Texas.

Write for Information.

The THRIFT CORPORATION

HOUSTON, TEXAS

year was marked by a striking victory of the Naphtha Syndicate in Great Britain, where the big world oil trusts were obliged to cease their war against R. O. P.,—Russian Oil Products, Ltd., the British subsidiary of the Naphtha Syndicate. This war was brought to a close by the conclusion of an important agreement between Anglo-American Oil Company and R. O. P., which has already resulted in considerable increase in the sales of Soviet oil in Great Britain." Another issue of the *Economic Survey*, No. 13 of the same volume, is devoted, with the exception of a tabular appendix, entirely to this agreement, which is regarded as of transcendent importance in Soviet industrial affairs. It states that the agreement, which is to extend over a period of three years, guarantees the acceptance on the British market of approximately 1,000,000 tons of Soviet petroleum products per annum, or about twice the amount sold in previous years; and that provision is made for the increase of Soviet participation in proportion to the growth of oil consumption in that market.

Derricks in the Bay at Baku

The State Bank explains that "The Soviet Naphtha Syndicate carries on its foreign trade through the agency of independent firms, state and semi-state organizations and also through its own distributing organizations in various countries. For instance, in Germany the Soviet Naphtha Syndicate has agreements with the 'Benzol Verbund' and other firms and is also operating through a mixed company known as 'Derop.' In France an agreement has been concluded with the 'Petrofina Francaise.' Quite recently agreements have been concluded in Italy with the semi-state organization 'Azienda Generale Italiana Petrolii' and with the Italian admiralty. In Spain, the Soviet Naphtha Syndicate has obtained a contract to supply oil to the 'Compania Arrendataria del Monopolio de Petroleos.' . . . In the Baltic countries, Persia, Turkey, and Manchuria, it has its own agencies, while in other countries (South Africa, etc.), it has agreements with national firms." The Soviet Naphtha Syndicate is represented in Finland and also has invaded the South American market, having establshined an agency at Buenos Aires.

The Amtorg Trading Corporation's pamphlet above referred to contains a paragraph bearing on this subject and reading as follows:

"Soviet petroleum products in 1927 filled about one-half of the requirements of the Italian market, about 18 per cent of the French, and 16.5 per cent of the German requirements. British imports of Soviet oil products made up about five per cent of Great Britain's total imports and 10 per cent of the imports of those varieties of oil which were imported from the Soviet Union. The Soviet Naphtha Syndicate has concluded a number of contracts with Standard Oil Company of New York and Vacuum Oil Company for shipments of Soviet oil to foreign markets of the American companies to a value of about $10,000,000 per year. In February, 1929, an agreement was concluded in London between the Russian Oil Products, Ltd., representing the Naphtha Syndicate of the U. S. S. R. in England, and the Anglo-American Company, acting for the oil combine, Anglo-Persian Company, Royal Dutch Shell Company, and Anglo-American Company. This accord provided for the sale of large quantities of Soviet oil in England."

J. P. BARKLEY W. R. MEADOWS

BARKLEY & MEADOWS

Rotary Drilling Contractors
and
Oil Operators

Offices

City National Bank Building - - - - - - - Wichita Falls, Texas

Necessity Forces Effective Conservation in California

By BRAD MILLS
Staff Representative

CONSERVATION was a leading topic in California during 1929, but it was only after the industry had been threatened with disaster that much headway was made toward curtailment. At the turn of the year it was obvious that overproduction had come to stay for at least six months, with the possibility that drilling of new fields would bring about a flood of crude extending over a period of two years.

Sponsored by the American Petroleum Institute, a mass meeting was called late in March to discuss plans for holding production to the average level of 1928. Favorable action was taken but many operators failed to vote on a motion to report to New York that production would be reduced immediately. A quota for all leading fields was set so that average production for the year would average about 650,000 barrels. The proposed reduction in the settled fields did not meet the approval of these operators, who contended that the critical fields were responsible for the bulk of overproduction.

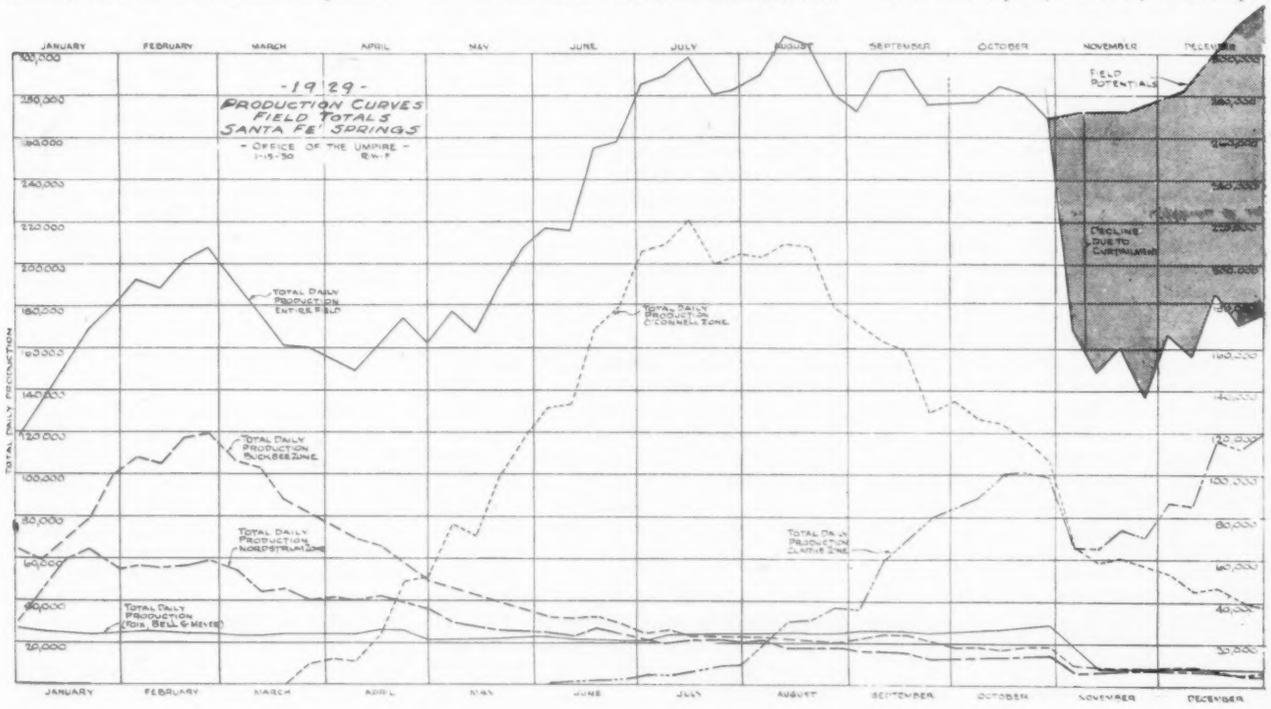
F. C. van Deinse was appointed umpire for the entire state and immediately set machinery in motion to bring about the necessary shut-in. Based on the production in February, the maximum established under the new plan gave a state total of 648,000 barrels, as compared with a February average of 793,000 barrels. The reduction in the settled fields was 10 per cent, with Long Beach suffering a 24 per cent cut and Santa Fe Springs being reduced to 125,000 barrels or by 29.4 per cent. Committees were appointed to work out the details in the various fields and after much wrangling under cover, reported favorably on the plan. The umpire issued orders, but to make a long story short, they were not obeyed. Several operators did make a small reduction, but the maximum amount shut in did not exceed 60,000 barrels. When it was evident that most operators were virtually ignoring the umpire's orders, all wells were opened up and production soared to still greater heights. After a strong fight lasting several weeks, F. C. van Deinse announced that he considered his services no longer required and asked that operators at least fall in line with the proposed gas conservation law, which was about to be passed by the state legislature.

Failure of the conservation program as outlined by the Regional Committee of the American Petroleum Institute was a heavy blow to the industry and paved the way for disorder in the development of critical fields. This break-down may in no way be laid at the door of the umpire, but must be placed squarely upon the shoulders of the operators.

Kettleman Hills

Kettleman Hills assumed a menacing position during the spring and the Department of the Interior brought pressure to bear, claiming that development of the field would throw the entire industry out of balance. Dr. George Otis Smith, representing Secretary Wilbur, spent several weeks in California, but holders of government permits on the North Dome were reluctant to stop work before lease requirements were filled. An agreement was finally reached, with the stipulation that four wells would be allowed to produce and al lothers shut down until July 1, 1931, after a satisfactory discovery had been made. A portion of the proceeds of oil and gas produced from the four wells was to be distributed to other operators as compensation for shutting in their wells. This agreement apaprently solved the problem in this greatest of all potential producers.

Late in the year, however, it developed



Production curves, field totals, Santa Fe Springs, 1929

that one well drilled on fee land might be produced, due to lease requirements. The whole scheme was endangered, as it was evident that completion of this well would lead to the completion and drilling of many more. An endless chain of offsetting would soon cover the entire field and a large production developed. The agreement was weak in some respects, making it possible to complete and produce wells if there was evidence of drainage. A few contractual stipulations were also made, and these were and still are expected to cause differences. The agreement was the best instrument obtainable, however, and stands out as one of the genuine achievements of the year. It will at least serve as a throttle on intensive drilling of a field producing 60 gravity oil.

Although the South and Middle Domes at Kettleman Hills were not serious threats during 1929, agreements to shut down wells on top of the sand were reached. This brought the entire field under control.

Increased production at Santa Fe Springs and the fear that state action would be taken to stop gas waste, caused the seven major operators to draw up a plan which would have reduced gas waste to a minimum and at the same time lowered production by nearly 100,000 barrels. The proposed agreement provided for a distribution of gas on regular contracts, each subscriber to deliver his pro rata without compensation from the association of seven major companies, which in turn agreed to contribute $230,000 each for maintenance of the association. The smaller operators steered clear of this agreement, although there was nothing in it which would have proved inequitable. This plan was abandoned after it was evident that it could never be enforced.

Gas Conservation Law

Sponsored by leading oil companies, a bill to prevent the unreasonable waste of gas was introduced in the state legislature. Although aimed directly at gas waste, the proposed law was expected to hold oil production in check. State officials professed to be interested only in stopping the large gas waste, but in the measure conservation leaders placed much faith. The bill was carefully framed on a gas basis, because it was impossible to prove oil was being wasted but easy to cite a huge gas waste. After making many changes which were expected to reduce the possibility of having the constitutionality of the bill questioned, it passed the legislature and quickly became a law.

In September the director of natural resources, acting for the state, made all operators in the Santa Fe Springs field defendants in an action to show cause why an injunction should not be issued to restrain further unreasonable waste of gas. The superior court postponed the case for three weeks, but it went to trial in October. Little headway was made for two weeks, the time having been taken in wrangling over whether lessors should be made parties to the action. By obtaining a writ of prohibition from the district court of appeals, the case was brought to a sudden halt, the question of bringing in lessors as defendants having been the basis for the action. The state supreme court took the matter out of the jurisdiction of the lower courts and announced that it would render a decision on the matter. No decision was handed down during the year by the higher court.

Although the state made a strong effort to enforce the gas conservation law, operators opposing the statute succeeded in tieing the state's hand absolutely fast. The outcome of the fight was a disappointment to conservation leaders.

Long Beach operators were also made defendants in a similar suit, but pending the outcome of the Santa Fe Springs case, nothing was accomplished.

At Ventura Avenue, another road was taken by the state in its effort to enforce the gas saving law. Although technicalities blocked the way for a time, only an agreement among the operators themselves prevented the state from accomplishing its purpose.

Price Reduction

After failure of the state to enforce the gas conservation law, the posted prices of Santa Fe Springs, Long Beach, Ventura and Seal Beach crudes was reduced to 40 cents and 60 cents by all leading purchasing companies. This blow struck terror into the camps of those opposed to conservation and operators immediately started negotiations with the major companies, hoping to reach an agreement which would restore the former crude prices. Concentrating on Santa Fe Springs, conservation leaders succeeded in obtaining a written agreement which provided for an immediate reduction to 150,000 barrels. A promise was made by the dominating purchasing companies to the effect that when the necessary reduction was made, the old price would be restored.

Paul Grimm was apopinted umpire and within a week production was down to the necessary level and the higher crude prices became effective, as promised. Success had at last crowned the efforts of conservation leaders, even if a slash in crude prices did prove to be the dominating force in the achievement. Production remained under control during November and December and the agreement probably will be renewed on February 1 for another 90 days. A small group of operators refused to shut in a part of their production, but quick work prevented an open break.

A mass meeting of Long Beach operators was held and a movement started which led to a reduction to around 100,000 barrels for the field and a restoration of the former crude prices. Neil Anderson was appointed umpire and his ability to bring about an almost unanimous agreement among more than 200 townlot operators was largely responsible for results obtained in this area. The wide-open break in crude prices was a strong force, however.

The part of the Seal Beach field which was responsible for excess production was controlled by three major companies and an immediate reduction to the allowable figure was made.

Elwood Curtailed

The rapid rise of the Elwood field placed the area in direct line for some plan of curtailment or a radical slash in crude prices. Operators were given their choice and agreed to reduce production to 30,000 barrels. Paul Grimm was appointed umpire and the cooperation of operators was one of the bright spots of the year. Field potential jumped to about 55,000 barrels and only the inauguration of conservation measures prevented a much larger flow.

Ventura Avenue fell in line on December 1, but operators agreed to base their action on gas production, rather than oil runs. The gas waste was not to exceed 10 per cent of the total available gas outlets. Oil production was reduced only a few thousand barrels under this plan, but on January 1 a combination gas-oil basis was established which was expected to make a better showing. Paul Grimm was appointed umpire in this field, assisted by a managing committee composed of one representative from each company. He was later given full authority in the field.

The effect of overproduction in California during 1929 on the Mid-Continent was pronounced, conservation leaders in the latter area having been in constant touch with California leaders. Only the fact that the California situation promised ultimately to correct itself through curtailment prevented certain Mid-Continent fields from releasing more oil to offset the effect of California products which were going in excessive quantities to markets ordinarily dominated by Mid-Continent products. Crude price reductions probably prevented continued overproduction in California, which in turn might have caused additional trouble in the Mid-Continent.

California can not afford to lose the ground gained by conservation during the past year and is expected to hold production to a more sensible level during 1930. Purchasing companies will not tolerate such an orgy of overproduction as was witnessed during 1929.

Stocks of petroleum products in California increased steadily during the past year, with the exception of November and perhaps December, totals for the latter month not being available. A new peak for all time was reached about the middle of the year each month constituting a new record until the November decrease. Curtailment measures were not enforced as soon as they should have been, but even a late start gave 1930 a less doubtful outlook.

Huntington Beach, Calif.—Petitions for writ of mandate against Surveyor-General W. S. Kingsbury have been filed in the Superior Court at Santa Ana, seeking to compel him to issue permits for prospecting on tideland permits offsetting the Huntington Beach field. It is claimed by plaintiffs that the city limits of Huntington Beach is in reality three miles from high tide line and not at the mean high tide line itself. There is a state law which prohibits drilling on tidelands within one mile of any incorporated city or town.

DEEP DRILLING *Responsible for* California Excess

DRILLING in California's proven fields during 1929 was very extensive, and developments during the period brought on a flood of oil which almost threw the industry out of balance. The trend toward deeper drilling was so pronounced and the results of such operations so successful that the year's activities will undoubtedly be reflected in the future development of lower sands in many shallow fields. Achievements in one field in California soon spread to others and a review of operations in the most critical area shows the possibility of increasing production in many districts which have long been considered as primarily shallow producers.

WELLS DRILLED IN CALIFORNIA*

	1929	1928
General Petroleum Corporation	110	87
Standard Oil Company	105	110
Shell Oil Company	101	137
Union Oil Company	72	59
Richfield Oil Company	38	43
Associated Oil Company	35	46
The Texas Company	24	68
Miscellaneous	786	620
	1,271	1,170
Total operating companies	311	275

*Based on Permits for New Wells.

Santa Fe Springs proved the outstanding field of the year and was largely responsible for the state's over-production. At the beginning of 1929, the Buckbee zone was the only cloud on the horizon and this sand promised to reach a peak around February 15 and decline rapidly. It had been revealed that the zone was comparatively small and not more than 500 feet thick on inside leases. Field production was about 100,000 barrels on January 1 and estimates at that time placed the probable peak at 325,000 barrels. About 150 wells were drilling for the sand and many of these were due to miss the sand on outside tracts. The zone was found between 5500 feet and 6000 feet and was not difficult to reach.

Peak of production from the Buckbee zone came around March 1, following the completion of several large wells. The Nordstrum zone, accidentally discovered when a well blew out and caught fire, was developed along with the Buckbee sand and the peak covered both of these formations. Maximum production barely exceeded 300,000 barrels and a rapid decline began.

Just as the field was showing promise of an early return to a production of less than 100,000 barrels, the O'Connell zone was discovered at about 6200 feet. Little was known of this sand for several weeks. The discovery well was tested and showed a high percentage of water. The second well was a large producer, however, and it was obvious that the field was on the verge of another flood of oil. The rapid decline of the Buckbee and Nordstrum zones caused a sudden rush of drilling for the O'Connell sand. Several large wells were completed and the Buckbee zone wells which had showed a rapid decline were killed outright and started for the next formation.

The O'Connell zone was found between 6200 feet and 7000 feet. Best production was obtained by including both the O'Connell and upper Clarke zones below the final shutoff. The upper Clarke sand was at first considered a distinct zone, but later was included with the O'Connell zone for all practical purposes. Only a thin shale body separated the two formations.

Cementing Troubles

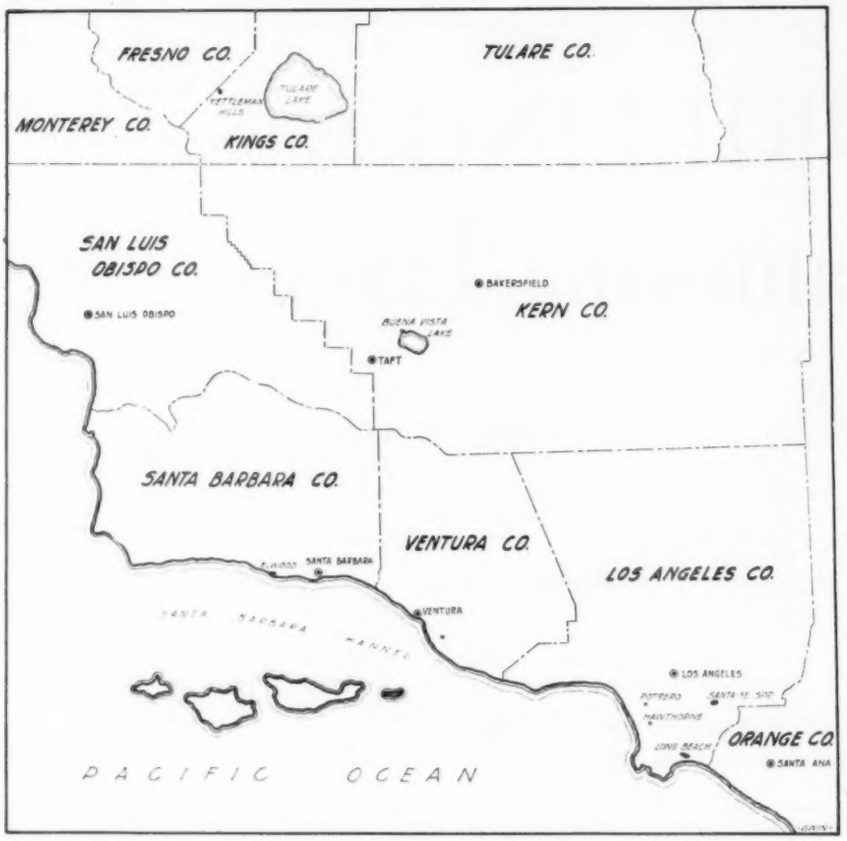
The intense heat in the O'Connell zone baffled operators for several weeks and various experiments were tried in an effort to solve the cementing problem. Premature setting of the cement prevented water shutoffs and even ice and ice water were used to offset the heat. After the problem was solved, the sand was developed with all the ease which attended drilling of the Buckbee and Meyer zones.

After a few dozen wells had been completed in the O'Connell zone, it was evident that production was destined for a new peak and a much slower decline than had been furnished by the Buckbee zone. The sand was more extensive laterally than the Buckbee and was more dependable. About the middle of the year a peak of about 325,000 barrels was reached, but new wells prevented an appreciable decline. Average initial production of the

Estimated Average Daily Curtailment—December, 1929
Southern California Oil Fields

(Curtailments effective for part of month have been reduced to 31 days basis)

Field	A. O. Co.	Gen. Pet.	Richfield	Shell	S. O. Co.	Texas	U. O. Co.	Others	Total	Segregation of "Others"
Long Beach	....	1,775	5,225	10,520	....	3,150	900	33,580	55,150	
Santa Fe Springs	4,200	24,500	5,100	10,300	14,800	12,450	20,700	42,980	135,030	Getty 15,500, Wilshire Group 2,780; Balance, 24,700
Seal Beach	1,055	....	....	....	4,230	....	....	8,375	13,660	Continental, 8,375.
Ventura Avenue	6,730	505	....	6,180	....	....	....	1,455	14,870	Pacific Western, 1,358 Balance, 97.
Elwood	....	....	....	....	....	....	....	20,910	20,910	Barnsdall-Rio Grande, 13,720; Bankline, 1,182; Spaulding,
Totals	11,985	26,780	10,325	27,000	19,030	15,600	21,600	107,300	239,620	1,080; Pac. Western, 2,954;
Plus all other estimated shut-in									115,380	Seaward, 718; Elwood Exploration, 1,256.
Total December shut-in									355,000	



Principal proven field development in California during 1929

first hundred completions was above 3000 barrels.

Before a peak had been reached in the O'Connell zone, the Clarke sand was found at the remarkable depth of 8100 feet. The discovery well was located on an extreme edge lease. Most operators, remembering the difficulty encountered in cementing shutoff strings on top of the O'Connell zone, were of the opinion that the new zone was far too deep to become a major production factor.

There was a rush for the Clarke, or Hathaway, zone by operators who owned edge leases and who had failed to get production in both the Buckbee and O'Connell sands. The discovery of the formation offered some hope for retrieving some of the losses incurred in search of shallower production. The first completions were not very satisfactory, due to water and difficulty of cementing around 8000 feet, but after a dozen wells had been finished it was apparent that the zone would be an important one on inside leases.

Within 60 days a production of almost 100,000 barrels was developed from edge leases, operators drilling for the O'Connell zone having had little reason to try for the Clarke sand. As wells gradually crept toward the inside leases, production climbed. Completions below 8000 feet were common and several wells having an initial flow of 10,000 barrels were finished during the latter part of the year.

As development of the Clarke or Hathaway zone continued, it was very obvious that 8000 feet was no longer a prohibitive depth. Several strings of 6⅝-inch casing were landed and successfully cemented around 8000 feet—formerly regarded as an almost impossible depth for such large casing. One nine-inch string was cemented just above 8000 feet during December.

The year ended with the Clarke zone going at its very best and the peak at least several weeks ahead. Failure of the O'Connell zone to decline rapidly helped the deeper sand to make an impressive showing. The Clarke zone covers almost as much territory as the Meyer zone but may not be as productive. Conservation brought the field under control, but the potential was about 335,000 barrels at the end of the year. Nearly 200 wells were drilling, practically all of which were intended for the Clarke series. The sand probably will not average more than 600 feet thick near the top of the structure.

Depth Record

Oscar Howard surprised the industry late in December with the announcement that he had drilled his Hathaway 7 to the remarkable depth of 9350 feet, or 70 feet deeper than Shell Oil Company's Nesa 11 at Long Beach. There had been a distinct break between the Clarke or Hathaway sand and the next zone found around 8700 feet, giving Howard the indisputable right to claim a new discovery below the greatest depth from which production is now coming. The hole was cored to bottom and oil sand or shale which showed no water was found. A string of 4¾-inch casing was run to 8730 feet for a test of more than 600 feet of formation. Hathaway 7 is the deepest well in the world and potentially a commercial producer, although a production test had not been made at the end of the year.

Discovery of the lower Hathaway zone at Santa Fe Springs again placed the field in a position to furnish another flood of crude. When the 8000-foot Clarke zone was found, there was doubt that it could be developed on a large scale; and the same doubt exists concerning the development of the 9000-foot zone. Inside operators believe that they will find the sand to be especially productive on their leases, since Howard's well is located on the flank of the structure.

At the beginning of 1930, production was being held to around 160,000 barrels at Santa Fe Springs but it was evident that the field would remain a menace all through 1930, unless drilling was stopped. The Clarke zone was at, or near, its height, the O'Connell zone was still a good producer, and the lower Hathaway, or 8500-9500-foot hung heavily over the field. About 190 wells were drilling and the potential promised to reach 400,000 barrels.

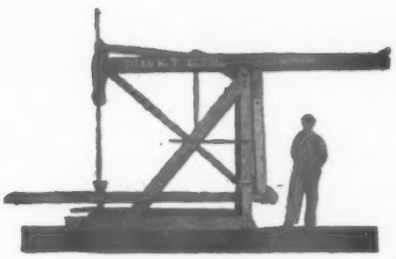
Long Beach

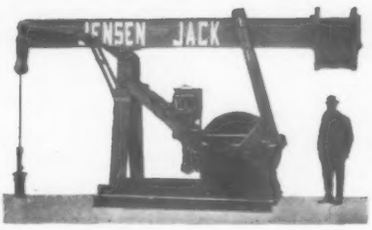
Although Long Beach failed to show the form it displayed during 1928, the field was an important market factor all during the year. The slow decline of the older wells and the ability of new completions to offset this natural decline added to the belief that it is the greatest of all fields. Producing from a few hundred feet to more than 2000 feet of oil sand, the several hundred wells showed the tenacity that should be expected from such a thickness. There were more than 100 drilling wells all during the year and new locations roughly kept pace with completions. Several good wells were completed on the southeast flank of the field and activity centered in this section during the closing months of the period. New locations predominated in this and other sections which have not been so intensely drilled.

The outstanding achievement in the field was the drilling of Shell Oil Company's Nesa 11 to 9280 feet, giving it the credit for several months of being the deepest well in the world. Located on a lease which had been productive at regular depths, the well was drilled as a test of the extremely deep sands. Streaks of oil sand and shale were cut between 9100 feet and bottom, but there was doubt all along that such a questionable formation would make an oil well. A string of 5¾-inch casing was cemented at 9144 feet, establishing a new record by more than 1000 feet at the time. A production test was made, but the well showed water and only a trace of oil. The casing was cemented three times, but a water shutoff was never obtained. The well has been shut down for several months.

The drilling of Nesa 11 was accomplished with ordinary rotary equipment and ordinary methods. Much of the equipment had been used on several other drilling wells. It required a pressure of nearly 2000 pounds to establish and maintain circulation while cementing the record string of casing. While not an oil well, Nesa 11 was a real achievement and demon-

JENSEN JACKS





for POWERS

Pumping powers all over the world are hooked up to JENSEN Jacks, because JENSEN Jacks have an absolutely straight lift, are easy to pull, and do not get out of order. Regardless of the depth of your wells, the volume of fluid, the size of the tubing, or the length of the stroke required to operate the working barrels you prefer, there is a JENSEN Jack that is just right in every detail. . . . All JENSEN Jacks are easily and quickly installed. They never fail to lower operating costs. Write for catalog and prices.

the ELECTRIC

The JENSEN ELECTRIC JACK is made with such beautiful precision, and the load can be so finely balanced, that oil men and power companies are astounded at the low consumption of electricity necessary to pump even deep wells with large production. There is no side thrust or other strain, and the lift is absolutely straight, so that replacements are almost unknown. Universally approved by engineering departments. Years ahead of anything else yet devised. . . . Write for literature and prices, which are extremely reasonable.

JENSEN BROTHERS MFG. CO.
COFFEYVILLE, KANSAS

Export Office: 136 Liberty St., N. Y.
Stocked by the Thrift Corporation, Houston; Petroleum Equipment Co., Los Angeles, California

TIMKEN BEARING EQUIPPED

CALIFORNIA PRODUCTION—1929

	Total	Daily Average	Santa Fe Springs Daily Average
January	23,385,939	754,385	153,538
February	22,300,707	796,454	189,299
March	24,324,729	784,669	170,171
April	23,295,060	776,502	158,331
May	24,053,351	775,915	181,600
June	24,624,627	820,821	237,466
July	26,796,627	864,407	262,405
August	27,233,353	878,495	281,501
September	26,104,264	870,142	280,894
October	26,895,160	867,586	268,376
November	21,317,540	710,585	161,266
December	21,705,554	700,179	167,519
	292,036,911	800,101	209,364

strated what may be accomplished when care is substituted for haste.

Kettleman Hills

Development at Kettleman Hills was spectacular, as was expected from such a high pressure area. Operators rushed into the field early in the year and made fast time until the agreement to shut down wells on top of the sand until July 1, 1931, was reached. This eliminated much of the necessity for rushing work and more care was taken in coring the extremely hard formation below 5500 feet. It was agreed, however, that four wells should be completed and produced.

While Continental Oil Company was attempting to place Elliott 12-8 on production, the well blew out and flowed wild for nearly three weeks. The fittings failed at a pressure of 2400 pounds per square inch and special connections were designed with which to bring the well under control. After the flow was turned into the tanks, production was found to be more than 7000 barrels of 61.4 gravity oil and 175 million cubic feet of gas. Such a well had never been completed in any field. The oil was more than 85 per cent gasoline and almost colorless. This was one of the four wells allowed to flow under the conservation agreement.

The discovery well—Milham Exploration Company's Elliott 1—produced all during the year at an average rate of about 3600 barrels. It showed only a small decline after a second and third well came in. Although an expensive well to drill, the producer has paid for itself several times.

The South Dome of the field was virtually eliminated during the year, with the failure of the most important test up to a depth of nearly 8000 feet. The Middle Dome promises to be productive but on a much smaller scale than the North Dome, where most of the activity is centering. At the end of the year, about 30 wells were being drilled, nearly all of which were located on the North Dome. Sharp dipping of the North Dome, as proven by the failure of two wells to find the producing sand where expected, gave this part of the field a slightly less menacing aspect.

Kettleman Hills can do no harm during 1930, unless some of the wells located on fee land and which are not strictly bound by the conservation agreement, are produced. This would precipitate an extensive offsetting campaign, in addition to the conservative drilling of permits and lands firmly bound by the agreement. There are about 20 wells to be drilled to the Temblor sand and shut down during the year. Drilling in this field is very difficult, with both a very hard formation and high gas pressure to handle.

Elwood

The Elwood field rapidly developed into a major producing area during 1929, due to the development of mainland leases and state tideland permits located in the Pacific Ocean. A dozen good wells were completed and the field potential jumped above 50,000 barrels. Extensive drilling on piers in the ocean added considerably to production. As pier-building technique improved, wells were located more than 1000 feet out in the ocean. This type of development is expected to be reflected in an increased production in other California areas. The Elwood field is ideally located on navigable water and the crude is used both in California and abroad. A conservation agreement was reached late in the year and drilling was checked. The field probably will remain under control during 1930.

Potrero

It appeared for a time that Potrero would blossom into a real oil field, even after so many years, but at the end of the year the excitement had blown over and the area was showing little promise. Completion of two wells in the Inglewood townlot section of the field, an extension of nearly a mile, was the signal to start more than 20 wells, but the rapid decline of these producers dampened the enthusiasm of all operators and caused the shutting down of many wells. The discovery sand in the extension was found around 3800 feet, but it proved to be very thin and tricky. The district does not constitute a threat for 1930.

Lawndale

Development of the Lawndale district during the past year will go down in California oil history as one of the greatest fiascoes on record. Both small and major operators rushed into this townlot area and soon after the first of the year more than 50 wells were drilling for the discovery sand, found around 5800 feet. Well after well passed the depth at which production was expected, but not one of the fifty-odd drilling on the east side of the structure obtained commercial production. Three small wells were completed near the discovery well, but total production at the end of the year did not exceed 900 barrels. It has been estimated than more than 10 million dollars was spent in the unsuccessful rush for an oil sand which did not exist. A few wells were drilled to around 7000 feet, but were abandoned as hopeless. There is not an active drilling well in the district and only a miracle could transform this desolate area into a large producing field.

Ventura Avenue

Ventura Avenue, usually good for at least one surprise a year, failed to live up to its record and only a little more than managed to hold its own against the natural decline. Production was extended to the 8000-foot level in one well, but most completions were finished between 7000 feet and 7700 feet.

Rincon

Rincon was the disappointment it was expected to be, but a 1300-foot pier was built out into the Pacific Ocean by the General Petroleum Corporation and it may be found that the structure lies chiefly under the ocean. In such a case, present production would be coming from edge leases and subsequent drilling of ocean permits might open up a large flow from subterranean wells.

Kern County

The smaller fields of Kern County were rather inactive, with Round Mountain, Fruitvale, Mt. Poso, Kern Front, Wheeler Ridge and all others very quiet. Standard Oil Company drilled a deep test in both the Elk Basin and Wheeler Ridge fields, but the former was a completed failure and the latter rather a doubtful factor. Little drilling is expected during 1930 in these smaller fields.

Settled fields of the Los Angeles basin displayed little life and barely managed to hold their own against the natural decline of the older wells. The conservatively developed area of the Seal Beach field was the outstanding exception, however, and only the inauguration of a conservation program prevented this sensation of 1927 from again forging to the front. The three companies controlling this part of the field completed more than a dozen large wells in rapid succession, but curtailed operations when it was evident that the excess production was doing more harm than good.

Aside from the Maricopa Flats extension, which will be reviewed in another article, the old Midway-Sunset district was very quiet during the year. The deep sand discovered in 1928 on Section 8-32-23 failed to show the expected form.

Drilling in proven fields during 1930 probably will be much less extensive than during 1929. There will be a wider distribution of development, but even this greater spread should not offset the slower pace in the intensely active critical fields.

Review of Important Developments in 1929

California Wildcat Effort in 1929 Not Notably Successful

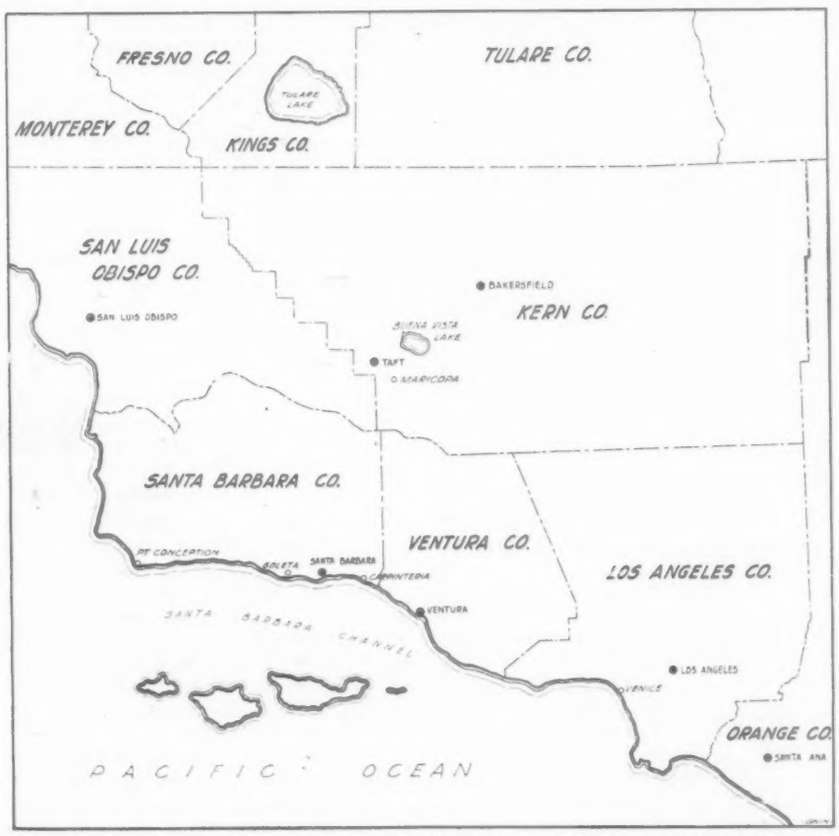
By BRAD MILLS
Staff Representative

ONLY an important last-minute discovery in the Los Angeles basin prevented 1929 from passing without adding the usual quota of new fields to California's oil map. Although wildcatting was almost as extensive during the past year as in 1928, and even more widely distributed, a review of drilling in unproven areas reveals a small number of discoveries which may have a far-reaching effect upon future production. During 1928 Kettleman Hills, Elwood and Fruitvale came roaring in, and even the most conservative will admit that such a trio could not be picked from the new fields of 1929.

Discoveries of 1928 were largely responsible for the type of wildcatting which prevailed during 1929. Spurred on by a fine record of new fields, operators shifted operations to districts which had been comparatively inactive for long periods. Particularly was this true in Santa Barbara County, where the number of active operations more than trebled within six months. Interest lagged in Kern County and the Los Angeles basin and the latter part of the year saw little activity in Ventura County. The remote districts showed little change during the year.

Santa Barbara

Discovery of the Santa Barbara Mesa field, located within the city limits of Santa Barbara, was the signal for a semi-townlot drilling campaign which ended disastrously for all concerned. The discovery well was completed around 2400 feet and flowed about 1000 barrels of 20 gravity oil, probably from the Vaqueros sand. The high percentage of water in the first well was completely ignored by both large and small operators and a merry race was soon on to develop a large production of oil which would have been ideal for fuel purposes. More than 30 wells were started within three weeks and Santa Barbara seemed on the verge of an oil boom of major proportions. Only a few weeks were required, however, to prove that the sand from which the discovery well was producing was broken and faulted. Three or four wells were completed and placed on production but the combined yield was negligible. Several of the wells completely missed the oil sand and it was soon evident that the area could not become a factor in California's production. The discovery well showed an increasing percentage of water, and failure of subsequent completions to prove profitable caused a complete shutdown of drilling operations. A feeble attempt was made to develop deeper production, but no oil sand was found below 2500 feet. The net result of operations was an almost complete elimination of the field from future developments. Much drilling had been done near the discovery well, and while major companies joined in the race, they never were hopeful that the new field would be important.



Principal wildcat activities and new fields discovered during 1929 in California. New areas are marked with circle

Orella

General Petroleum Corporation opened up a new field near Orella, about 10 miles west of Elwood and along the Pacific Coast. The discovery well was completed at the remarkably shallow depth of 1450 feet, but produced only 175 barrels of heavy oil on a short test. The new area probably will be called the Capitan field. The importance of the discovery lies chiefly in the fact that several similar structures are located near the Capitan field and there is a possibility that others may prove productive.

Maricopa Flats

Although the Maricopa Flats district has been classed by some as being in the Midway-Sunset proven area, it really belonged in the wildcat division until the completion of the discovery well last spring by the Signal Oil & Gas Company. The first well came in with an initial production of about 2500 barrels, opening up an entirely new producing sector which filled in the "hollow foot" on the extreme southeast tip of the Midway-Sunset district. The new sand was found a little below 3000 feet and its discovery caused a rush by large operators to develop holdings which they had held for years. Several good wells were completed between 3000 feet and 4000 feet and it became increasingly evident that the area would become an important fac-

tor in Kern County production. The oil averaged about 22 gravity, but contained a good percentage of gasoline. At the end of the year more than 30 wells were drilling in the sector and the maximum producing acreage seemed to be about1500. Production is limited, however, only by the extent of the producing sand toward the southeast. The district should be active all through 1930.

Summerland

Discovery of a producing sand outside the former limits of the old Summerland field, in Santa Barbara County, seemed very important for the moment, but subsequent drilling failed to disclose a uniform sand condition. The deeper sand was found only a little below 1000 feet and production was small. Several wells were drilled but total production developed was negligible. This field has produced oil from shallow ocean wells, located on rickety piers, for more than 40 years.

Gaviota

One of the keenest disappointments of the year was the Gaviota or Point Concepcion district, where Western Gulf Oil Company developed a good flow of gas. The first well blew out from about 3100 feet and sprayed a small quantity of 28 gravity oil. When brought under control, the well flowed 25 million cubic feet of gas and a large quantity of salt water. More hole was made but a subsequent test showed only water. The field probably will remain inactive during 1930.

Goleta

The Goleta district, in Santa Barbara County, was especially active but failed to yield more than a large flow of gas from one well. General Petroleum Corporation's More 1 blew out from some depth between 2600 feet and 4500 feet, while cement was being drilled out below the 11¾-inch casing. When finally brought under control, the gas flow proved to exceed 60 million cubic feet but it was accompanied by only a spray of oil. With such a display of life, the surrounding territory attracted much attention and several wells were started over a wide area. The discovery of a very light oil field three years ago near Goleta has been the direct cause of many unsuccessful attempts to extend production.

Carpenteria

Failure to find production on the Carpenteria structure, following the discovery of a promising sand around 4000 feet, was another distinct disappointment in Santa Barbara development. Continental Oil Company experienced much trouble in holding the first test under control, but on a production test the well made only a small quantity of gas and no oil. Another well was drilled with even more disappointing results.

Tidelands

The advent of pier drilling on ocean permits in Santa Barbara and Ventura Counties during 1929 was of great importance and the innovation may lead to the development of a large production on state permits lying outside the mean high tide line. The success of such operations in the Elwood field led to extensive wildcatting in the ocean. While much of the activity on unproven ocean permits was for the purpose of validation only, deep tests are planned for several structures. Present development of this type has been extended to Orella or Capitan, Carpenteria, Goleta and Rincon. At Capitan all ocean tests are indirect offsets to the discovery well and a fair production is possible. The nine companies operating at Carpenteria have entered into a unit plan of operation, with Continental Oil Company drilling the first well. General Petroleum Corporation has built a very long pier at Rincon and is drilling a well on the thory that the main part of the structure is submerged. If such a theory proves correct, Rincon may show a reversal of form and become a good field. Pier drilling on ocean permits holds much promise along the Santa Barbara and Ventura coast lines and a decline in activities in the critical fields will be reflected in increased development on these subterranean leases controlled by the state.

Drilling about midway between the Kettleman Hills and Coalinga fields, Petroleum Securities Company cut a thin oil sand around 7000 feet, but the formation proved of little value.

Buttonwillow

The Buttonwillow district, long a gas producer, showed little promise of becoming an oil field. At least one well was kept active in this district all during the year, but only thin streaks of oil sand were found. A gas outlet was provided and additional gas wells probably will be drilled to increase the present reserve. The Buttonwillow gas field is located in a great flat country about 20 miles of the Midway field in Kern County.

San Joaquin Valley

Leasing of great tracts in the San Joaquin Valley by the major oil companies, on the theory that the flat country between Fresno and Coalinga, as well as a large district northwest of Fresno, may hold oil reserves is considered important. Inauguration of Gulf Coast sub-surface methods during the year conclusively showed the trend of operations in this vast district and probably will lead to considerable drilling within the next few years. Coring of shallow wells on large leases was also in evidence.

Los Angeles Basin

Wildcatting in the Los Angeles basin was slightly below normal during the year. Continental Oil Company started a well a short way northwest of the Alamitos Heights sector of the Seal Beach field, basing their action on the belief that a faulted condition may have caused an accumulation between the Seal Beach and Signal Hill fields. Shell Oil Company is drilling a wildcat southeast of the Seal Beach field, also on the extension theory. Archer Oil Company found an oil sand around 5200 feet in a test two miles east of the Torrance field, the discovery making a deep sand possible at Torrance. No test was made, however. Several scattering wells were drilled in the basin, but very few showed promise.

Discovery of a deeper sand in the old Newhall field was of some importance and is expected to cause a revival of drilling in one of California's first fields. Oil was first produced here more than 50 years ago.

Probably the outstanding discovery of the year was near Venice, where the Ohio Oil Company, one of the most recent Eastern entries into California, surprised the industry at large with the completion of a 2500-barrel well at 6200 feet near the middle of a huge swamp which had been condemned by leading California geologists for a generation. The well blew in while the crew was trying to locate the source of water which presumably was entering the hole from below the final shutoff at 5950 feet. The well flowed for more than two weeks without showing water at all. Although the oil was only 24 gravity, it contained a good gasoline content. Geologists are busy revising their theories concerning the Los Angeles basin. The discovery was a complete victory for the company and opened up what may be a large field.

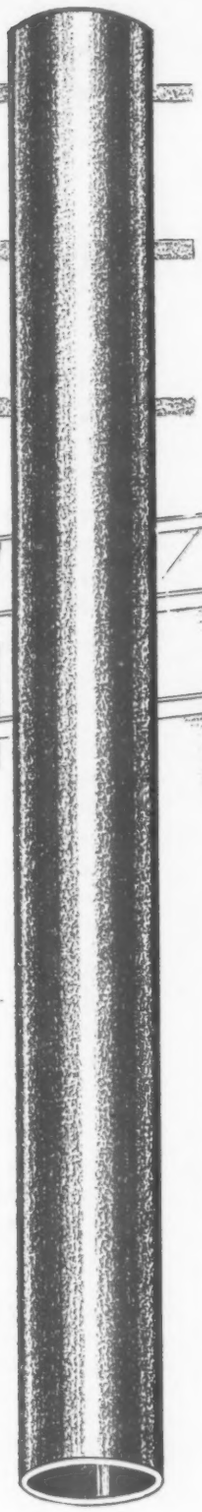
Overproduction in critical fields may retard a certain type of wildcatting, but 1930 should show about the same activity as was witnessed during 1929.

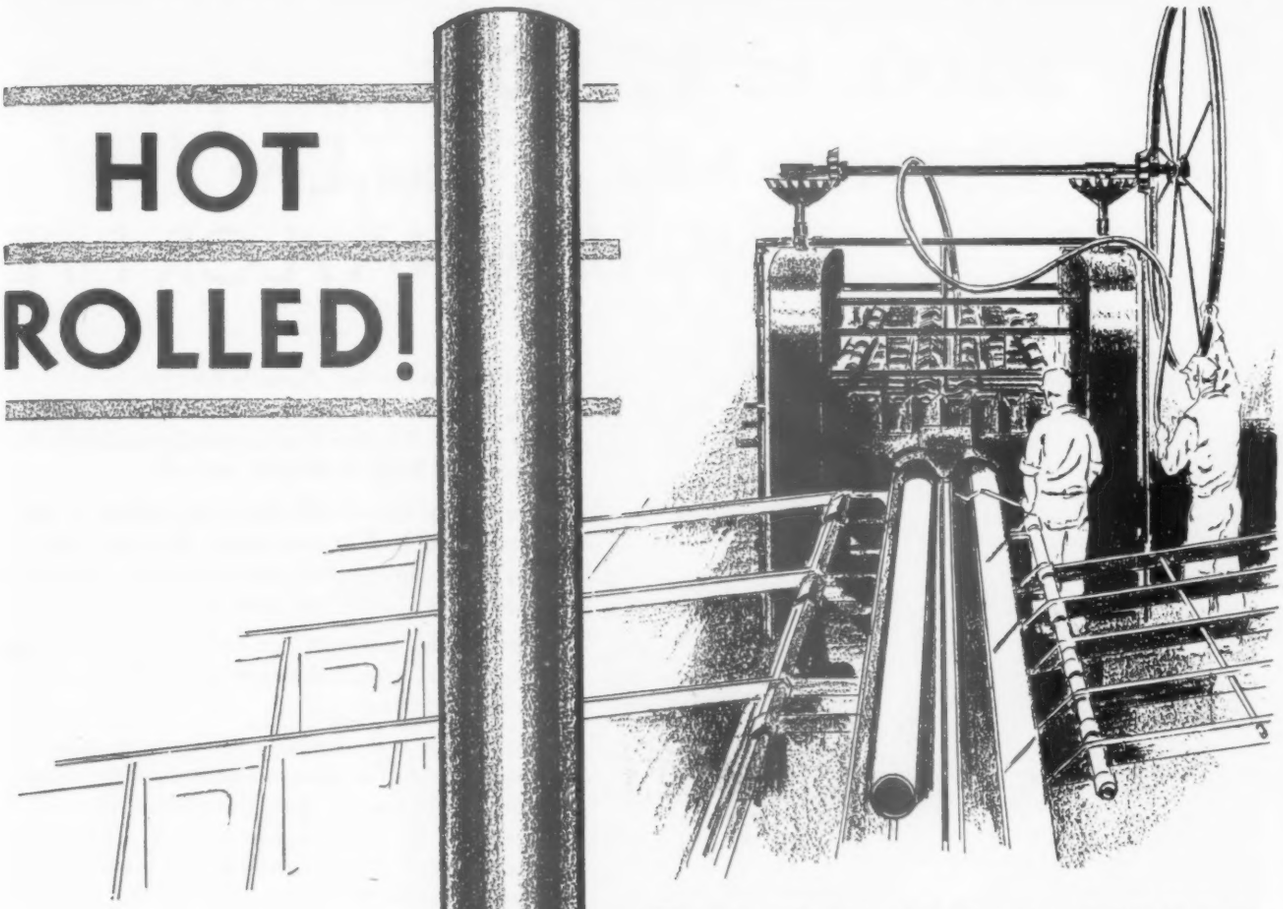
Bakersfield

Bakersfield, California. — Importance has been attached to the Elmer Oil Company's No. 1, Section 2-29-20, which is pumping about 15 barrels of 24 gravity oil and a small amount of water from 3975 feet. Although the significance of a 15-barrel completion is often difficult to see, the reasons for any production at all is more important in this particular case. Major companies have drilled anticlines along the west side of the San Joaquin Valley on several different occasions in the past, but have generally found them barren along a certain sector. Elmer Oil Company moved a short distance away from the fringe of the valley and has found a small quantity of oil in a monocline leading up to the edge folds. In this particular instance, the discovery was not important from a production angle, but the fact that the monocline yielded oil means that it is possible to get a better production elsewhere on monoclines.

Taft, Calif.—Barnsdall Oil Company got the best well of the week in the Maricopa Flats district, completing Hazelton 1-A with an initial production of 2400 barrels at 3428 feet. The oil was only 18.2 gravity but showed the unusually small cut of one-half of one per cent. Standard Oil Company completed Bonynge 3, the well making about 200 barrels on the pump. The several wells completed since the extension was discovered last April show an unusually spotted condition, the depth of the oil sand, gravity of the crude and size of the wells having been very irregular. Best production has been obtained at about 3400 feet.

HOT ROLLED!





From Ore to Finished Pipe or Tube—Pittsburgh Seamless is the product of one Company's Resources and Skill.

The pierced, white hot Seamless billet is conveyed to a mill where it is given a series of passes through rolls which reduce the outside diameter. Simultaneously with the pressure of the rolls on the outside, a mandrel on the inside of the tube controls the inside diameter, and thus the tube wall is reduced to the desired thickness accompanied by a corresponding elongation of the tube.

Twenty-five years' experience in the manufacture of seamless steel tubular products have enabled us to develop manufacturing processes that assure a fine exactness and a surplus of strength and safety in every Pittsburgh Seamless Pipe or Tube.

Pittsburgh Steel Products Co.

DIVISION OF Pittsburgh Steel Co.

New York Pittsburgh Chicago Detroit St. Louis Houston Tulsa

Pittsburgh Seamless

CASING
OIL WELL TUBING
DRILL PIPE
LINE PIPE

Lengths up to 45 feet, depending on size and wall thickness. Sizes ½" to 14" O. D.

3002

Save $500. to $2,000.
On Every Mile of Your Line
By Using NAYLOR PIPE

LOOK at the line shown in the photograph. It's a Naylor 16" pipe line, laid at the lowest cost per foot. Another Naylor installation where the saving was $500. to $2,000. per mile.

The Naylor Pipe in this line was trucked 31 miles from the rail end; carted; strung along the right of way and coupled—with just a gang of 12 men—at a total cost of only 11½ cents per foot.

Compare this low cost per foot with the cost per foot for 16" standard weight wrought pipe under similar conditions.

Naylor Pipe is the lightest of all pressure pipe. It weighs only half as much as standard weight wrought pipe. Light weight pipe reduces costs because it means half the freight to pay to get it. And when you have it, it means half the weight to truck (fewer trips yet double the load)...and half the weight to handle in the field.

Naylor Pipe is also furnished (at no extra cost) in uniform lengths of 30 and 40 feet. Here's where you reduce your coupling costs, because these lengths require fewer joints than random 18 to 22 foot lengths.

These advantages of Naylor Pipe are saving other oil and gas companies $500. to $2,000. on every mile of their lines. Choose Naylor Pipe and obtain the same economy.

NAYLOR PIPE COMPANY, Main Office & Plant, 1230 E. 92nd St., CHICAGO

SALES OFFICES

25 Church St., New York Witherspoon Bldg., Philadelphia 1500 Cadillac Sq. Bldg., Detroit 507 Philtower Bldg., Tulsa 601 Post-Dispatch Bldg., Houston

DUCOMMUN CORPORATION
LOS ANGELES SAN FRANCISCO
Exclusive Distributors:
California, Arizona, Nevada and Utah

MONTREAL, CANADA
Mechanical Equipment Co.,
New Birks Building

TONCAN COPPER
Naylor Pipe
Maximum Structural Strength Mo-lyb-den-um With Minimum Weight
IRON

Standardized Naylor Pipe is made in sizes 6" to 12" I. D. and 14" to 20" O. D. in any uniform length desired up to 40' 0". Ends made to wrought pipe standards for all types of coupling.

Where corrosion resistance is not a factor, Naylor Pipe can be furnished in steel.

Toncan Copper Molybdenum Iron is a development of Central Alloy Steel Corporation, the world's largest and most highly specialized alloy steel producers. It possesses a superior corrosion resistance, making it the favored pipe material.

Van Field Important Development in Texas During Year

By H. H. KING
Staff Representative

DEVELOPMENT of oil and gas production in flush quantities from the Woodbine sand formation under new structural conditions by Pure Oil Company at Van overshadows all other discoveries made in the interior of Texas during 1929. This strike was accomplished on October 14, and by the close of the year three additional producers were completed to give the field a potential output estimated at more than 10,000 barrels daily. The performance of these wells, and information furnished by core drilled tests herald an oil producing area of major proportions, with prospects of a record crude yield per acre because of unusual thickness of the Woodbine.

Discovery of oil at Van, which is located in Eastern Van Zandt County, and more than 40 miles from the nearest oil production in Central East Texas, must be followed by a steady development campaign in the field proper. The various companies in possession of the nearby leases took immediate action to avert a repetition of the wasteful and competitive drilling that has followed in the wake of other Woodbine sand discoveries, and effective November 1, 1929, inaugurated a unitized plan of operation. This plan assures a steady development program on an economical basis, with production regulated so as to conform to the transportation facilities available for the oil as produced, as well as to balance with the market outlet.

Pure Oil Company was elected to carry out the development program, with one field organization functioning on the pooled acreage. This company is also to take care of all oil produced during the first year, then each party to the plan will be privileged to have first call on their respective portions of the field's daily yield. Pure Oil Company constructed field storage and a 19-mile 10-inch line to a tank car rack at Chandler, Texas, and was marketing oil from the field by the middle of December. Contracts were made with Houston Oil Company, which is operating a plant at Camden, Arkansas, and with Louisiana Oil Refining Corporation, Shreveport. The surplus production above these two contracts is being moved in cars to the Smiths Bluff, Texas, plant of Pure Oil Company. Survey has been completed by Pure Oil Company for the routing of a line from Chandler to Smiths Bluff, and it is planned to start construction work on a 10-inch carrier in the near future, thus assuring the Van field a direct and permanent trunk line connection with Gulf Coast refineries and export terminals. Pending completion of a direct line to displace tank car shipments, it is reported that crude prices in the Van field will be about 20 cents per barrel less than the regular Mid-Continent gravity scale for similar oil, which averages 35 degree gravity in the new field.

Five Companies Interested

Five companies are taking part in the unit plan of development in the Van field, and their combined acreage contribution to the pool aggregates 5800 acres of leases. The companies taking part, and their percentage of ownership follows: Pure Oil Company, 81.7; Humble Oil & Refining Company, with Gulf Production Company sharing a minor interest, 7.75; The Texas Company, 4.51; Sun Oil Company, 3.57, and Shell Petroleum Corporation, 2.47.

A compact field organization has been established at Van by Pure Oil Company to carry on the routine work of developing the block of 5800 acres pooled by the five companies holding leases within the expected oil producing area. A hand-picked group of department heads and workmen have been transferred from other fields by Pure Oil Company in organizing the Van field staff, which operates under the direction of B. S. SoRelle, manager of Texas and Louisiana activities of the company whose headquarters are at Fort Worth. The Van field unit plan operating committee, consisting of one representative of each member of the plan, functions in an advisory capacity as to operating methods, and determines the location and number of tests to be drilled.

The operating committee includes B. S. SoRelle, Pure Oil Company; M. B. Sweeney, Sun Oil Company; E. G. Allen, Shell Petroleum Corporation; John R. Suman, Humble Oil & Refining Company, and Fred C. Sealey, The Texas Company.

The Van field staff of Pure Oil Company follows: L. E. Lewis, district superintendent; A. A. Goodman, assistant district superintendent; K. Kirkman, chief field clerk; L. V. Kennedy, chief warehouseman; H. B. Thomson, production engineer; E. M. Rice, paleontologist; H. E. Barr, rotary tool pusher; James McNally, connection foreman; E. S. Morris, civil engineer; K. Murphy, electrical foreman; Joe Acklin, transportation foreman. Ray Parr, who resides at Grand Saline, is in charge of the pipe line, field storage and tank car loadings over rack at Chandler, working under the direction of W. M. Averill, district general manager of the crude oil purchasing department, with headquarters at Beaumont.

Modern Field Camp

In addition to the above department heads the Pure Oil Company has engaged the services of experienced men to carry on the growing volume of work that has followed recent completions and the starting of new tests. These men are housed in a modern camp recently completed about one mile west of the producing area. This camp is equipped with sewerage, lights, gas and water. It has three bunk houses, with accommodations for 70 men, and mess hall for a like number of men. Five-room cottages have been erected for the district superintendent and also for the camp matron, while a similar structure serves a dual purpose of laboratory and living quarters for the palenotologist and geologists. A specious bath house is numbered among the conveniences. A warehouse and pipe yard has been completed on the camp site to receive materials and equipment brought to the field in company owned trucks from the nearest railroad connection at Grand Saline. A 10-car spur track on the Texas and Pacific Railroad has been obtained at the latter town for the unloading of supplies, and the truck haul is about 13 miles.

Well Spacing

Engineers have surveyed and platted the unitized acreage in the Van area for a uniform spacing of wells, with locations made on paper for the drilling of a test at the center of each five-acre square. However, the operating committee has indicated that one well to 10 acres will be drilled in the early stages of the development, while the initial development program will be largely centered on the drilling of at least one well on the large number of leases that expire in 1931 and 1932.

Provisions were made by Pure Oil Company immediately after completion of its Van field discovery well for an adequate water supply, and water for the camp and field use is being procured from the headwaters of the Neches River on the R. L. Nevill farm, located about five miles southwest of the field. This water is pumped through a 6⅝-inch line to a 55,000-barrel tank on the Cook farm camp site, then delivered by gravity through a 10-inch line to all completed and drilling tests.

Van field is not expected to be an ex-

ception in the matter of producing a large volume of salt water as oil drainage from the Woodbine sand takes place, so preliminary steps have been taken for the construction of a disposal system. It is reported that plans have been completed for the laying of a line from the field to Dry Creek, which is a tributary of the Sabine River. Both streams are normally contaminated with brackish waters.

Standard Equipment

Rotary drilling equipment will be used exclusively in the Van field, except when it becomes necessary to install standard tools to make a completion. Ninety-six-foot steel derricks have been adopted as the most suitable and economical size for this drilling, and they will be set on concrete foundations. Cementing of the floors will follow the completion of each well. A standardized procedure will be followed in the drilling and equipping of all wells. Only two strings of casing will be used in making completions from the present known oil producing level. The average surface casing will consist of 300 feet of 10¾-inch, 40-pound, A. P. I. specification lapweld pipe, while the other string will average about 2600 feet of seven-inch o. d., 24-pound, A. P. I. specification pipe. The latter will be cemented with 200 sacks of cement, while about 75 sacks will be used in securing the surface pipe. The softness of the Woodbine sand requires the setting of a 5 3/16-inch, 17-pound liner from the bottom of the oil string to the bottom of the hole.

All drilling in the Van field is to be performed by contractors on a footage price basis. Contractors have been paid $3.00 per foot on the first group of tests drilled, but this price may be adjusted as conditions in the field become better known. Contractors are supplied with fuel, water, derrick, casing and slush pit, but the former must provide their own core barrels, fuel and water tanks. Contractors are required to insulate boilers and steam lines. Either four or six-inch drill stems are permissible. Protection from crooked holes that have been costly in other Woodbine sand fields is assured by clauses being inserted in drilling contracts to limit the degree of drift from vertical, while the company can make a survey at 500-foot intervals to test holes for accuracy in drilling. The first three cores taken in a test are to be at the expense of the contractor, but additional ones will be paid for at the rate of $150.00 per day. Drill stem tests are to be made at the risk of operator.

Natural gas bearing a high gasoline content is available in the Van field, and plans are to install a recovery plant when sufficient wells have been completed to justify its operation. Residue gas from this plant will be used for repressuring the sand when the production exceeds the surface requirements of the field.

Review of Pipe Line Construction in Central Texas

By H. H. KING
Staff Representative

PIPE line projects completed in 1929 provided adequate transportation facilities for a normal production from all the fields in the interior of Texas, with one major pipe line project scheduled for 1930 to take care of future high gravity production in the Van field. The Pure Oil Company has made preliminary survey for the building of a 10-inch trunk line from the Van field to the Gulf Coast, and as development in the field progresses one or more lines will be extended from the Corsicana-Powell field to share in the marketing of the oil after the first year.

Transportation facilities for West Texas caught up with allowable production during the summer of 1929 as result of the completion of new lines to the coast and looping of old lines, and in reality, provided a surplus of room for oil movement, since the Yates field is not expected to ever produce in proportion to its estimated potential output. The past year marked the completion of The Texas Pipe Line Company's combination 10 and 12-inch carrier from Jal, New Mexico, via important West Texas fields to a point near Houston, thence to Port Arthur, aggregating 644 miles. This project was placed in operation in July, and was later tapped with 46 miles of six-inch line to deliver oil to the San Antonio refinery of The Texas Company, and also with a 39-mile six-inch line from Rosansky station to the Darst field, near Luling. A 12-mile six-inch line was built in October from McCamey to the Rowan-Tong pool, Pecos County, and a 46-mile six-inch line was completed last summer from Jal, New Mexico, to the Lea field. The Texas Pipe Line Company also built 21 miles of four-inch line from the Bulcher field, Cooke County, across into Oklahoma to tap its Healdton unit.

Gulf Pipe Line Company launched a major expansion program during 1929 to relieve Gulf Production Company in West Texas from a cramped position on excess production. This company completed a 78-mile stretch of combination eight and 10-inch line from Midland station via Monahans to Winkler County late in March, and inserted a 20-mile eight-inch loop on its Midland-McElroy-Yates field trunk line, and began operating same in May. The company's largest project consisted of laying 409 miles of combination eight, 10 and 12-inch loops from Midland station via Ranger, Wortham and Lufkin to Port Arthur, thus increasing oil deliveries into the latter point to 125,000 barrels daily. Construction work was completed late last summer after having purchased materials in March.

Shell Line to Coast

Shell Pipe Line Company completed its first trunk line to the Gulf Coast in April, 1929, when 450 miles of 10-inch line was built from McCamey station, West Texas district, to Houston. A lateral line was built from Austin station to the Salt Flat field, near Luling, using six-inch pipe, and placed in operation prior to the first movement of West Texas oil.

Humble Pipe Line Company extended its West Texas system across into New Mexico to serve operators in the Jal field, using about 10 miles of eight-inch pipe, and later made other minor extensions near the field. This line began operating early last May. The company purchased pipe last January to insert three new 10-inch loops on its Kemper-Ingleside trunk line so as to increase the capacity to about 90,000 barrels daily. Humble Pipe Line Company also built 18 miles of six-inch line from the Yates field to the Taylor-Link field, Pecos County.

Magnolia Pipe Line Company built a 63-mile 10-inch extension line from its Midland station to the Hendrick field, and ran first oil through same on April 12, 1929. This company had built earlier in the year a 15-mile four-inch line from its Hendrick field tank farm to the Scarborough pool in northern Winkler County.

The Shipley pool, Ward County, attracted two pipe line connections during 1929, including the Wickett Pipe Line Company's 15-mile four-inch line from refineries at Wickett. The Atlantic Pipe Line Company built 17 miles of six-inch line to tap this pool, and ran the first oil July 4, 1929. Coltex Refining Company completed construction work early in 1929 on 18½ miles of four-inch line from existing lines in Mitchell County to the Chalk-Roberts field, Howard County.

Landreth Production Corporation rejoined the ranks of pipe line owners in the West Texas district late last year by construction of 14 miles of eight-inch line from tank farm and car rack at McCamey to its production in the Taylor-Link field, with 10-inch gathering lines. This line began operating in December, and has since been sold to the Shell Pipe Line Company.

The Reagan County Purchasing Company, Inc., which has a life time contract to purchase and run all oil produced in the Big Lake field up to 20,000 barrels daily, completed an 8½-mile six-inch line parallel to its old line that extends from the field to tank farm at Kemper, Texas.

The Waggoner Refining Company started construction work late in 1929 on about 25 miles of six-inch line from its Electra pump station to Wichita Falls and intermediate refining centers.

Pure Oil Company began operating a 19½-mile 10-inch line from its tank farm near the Van field to a tank car rack at Chandler, Texas, about December 16. This line will be the first unit in the proposed line to the coast.

No Important New Discoveries in North Central Texas

By H. H. KING
Staff Representative

SUCCESSFUL wildcat completions in the North and Central West Texas high gravity oil producing districts reached a total of 49 during 1929, with only one new county added to the list of those producing oil in the district. Wildcat contributions during the past were of minor importance as a whole when weighed as to becoming potential factors in the general crude market situation, owing to the lack of flush production. However, these new strikes materially aided in providing virgin acreage for drilling that reach a total volume in proportion to former years, with shallow wells predominating among the successful completions.

Foard County joined the ranks of producing counties in the North Texas district during 1929 after having previously made several threats of successful oil completions. Shell Petroleum Corporation's W. S. Tarver 1, located near the old Tarver gas pool, was completed in June making 200 barrels initial at 2014-53½ feet, and led to the drilling of a half dozen nearby tests, but indications are that the area is small and of light production caliber.

Wilbarger County set the pace on new production and total crude yield for the year due to aggressive drilling in the series of pools and fields on fee lands of the Waggoner Estate during 1929. The new discoveries credited to this county were closely related to existing production, although cut off by dry holes, and as a whole were of little importance. Completion of big wells in the 2600-foot lime horizon in the southeast extension of the old Sigler pool was the outstanding development during 1929 in Wilbarger County. Crude market congestion retarded field work in the summer and late in 1929, and operators entered the new year with partial proration of pipe line runs. Sufficient proven acreage is awaiting the drill and an improvement in market conditions to keep Wilbarger County in a prominent position for several years.

Wichita and Archer Counties

Both Wichita and Archer Counties came through with a sizeable quota of wildcat and semi-wildcat strikes during 1929 to uphold field work, but these discoveries are closely related to established fields or pools. Such discoveries are required each year to prolong drilling activity, and a heavy toll of dry holes result from the efforts of the operators and companies to uncover this type of production. A similar situation exists in northern Young and southeastern Baylor Counties, where shallow sands and saturated lime horizons extend over the line from Archer County. Smaller companies and individuals are the most aggressive in this pioneer work. The south half of Young County added two wildcat flowing wells from the sand horizon, and a deep lime producer. Transcontinental Oil Company's W. H. Corbett 1 registered an initial yield of 400 barrels daily at 4006-45 feet in giving the county a new lime area, but when deepened to 4590 feet failed to increase the flow.

Cooke County

Wildcat efforts of the Fain-McGaha Oil Corporation on the Huggins farm gave Cooke County an entirely new pool late in June, when an initial flow of 200 barrels was gained from sand at 1181-89 feet. Drilling on nearby leases was launched promptly, and about 40 tests were completed before the end of the year. This county broke into the limelight in July when the Kewanee Oil & Gas Company's Timmins 6-B, located on the west side of the Bulcher field, developed a natural flow of 4300 barrels from sand and lime at 1156-1466 feet through having drilled deeper than nearby completions. Only a few large wells were completed in the drilling that followed, but the county's output climbed to a new peak flow of production as result of these unusual wells, and incidentally aided the North Texas district in establishing a record production of 110,550 barrels daily during the week ending August 14, 1929.

Deep production from the lime series was added to the Bryson field, Jack County in July when the Petroleum Producers Company and The Texas Company's Shanafelt 1 flowed 1500 barrels initial at 4569-95 feet after missing the regular sand pay horizons. The Bryson field experienced a steady and successful drilling campaign during 1929, and is in line for considerable more development when market conditions improve. P. F. Gwynn-Duke et al's wildcat on the Rankin farm, located east of the Bryson field, was completed in December making 25 barrels daily at 2984-3011 feet after being taken over and deepened from a shallower level. Buttram Petroleum Corporation's wildcat efforts on the Boyd farm, located eight miles northwest of Jacksboro, furnished a surprise completion when it made 125 barrels initial from Strawn sand at 2423-26 feet, but a west offset failed to produce when carried through the sand to the lime horizon.

Coleman County

Coleman County was the live spot of Central West Texas during the past year, and came through with the most discoveries. This county had an active drilling campaign through the development of fields established in previous years, and the bulk of the new production was furnished by extensions given the Morris-Keeney field. Of the seven successful wildcat oil and gas completions made in the county during 1929, the Joines pool has the earmarks of becoming the most important. The latter was opened in October by C. M. Joines et al's Stewardson 1, making 25 barrels daily at 1457-66 feet, and by the end of the year completions had bolstered the output of the pool to about 500 barrels flush output.

The usual active drilling campaign that has prevailed within the borders of Brown County in recent years was noticeably absent during 1929, and dry holes held a prominent position among completions. The only important drilling activity enjoyed by the county during the past year was in the southeast Grosvenor pool, or Rosenfield area. The E. L. Smith Oil Company's George 1 completed a 250-barrel well at 1290-98 feet in July, and less than a quarter-mile from the original pool, but in doing so opened a new trend of production. More than 40 completions occurred in the pool before the end of the year.

Two wildcat completions made in Palo Pinto County during the past year included a shallow sand producer and a deep lime well. Ashe Syndicate's Hart 2 made 80 barrels oil and six million cubic feet wet gas daily from lime at 3942-43½ feet to establish a new producing area in the western part of the county. The joint efforts of Prairie Oil & Gas Company and Amerada Petroleum Corporation on the Allen & Ritchie ranch yielded a 100-barrel producer at 1550-56 feet in December. This shallow well is located in the northeastern part of the county, and near the center of a large block of leases.

New discoveries on wildcat drilling blocks in Callahan, Eastland, Shackelford and Throckmorton Counties within the past year were of little importance, and later development work on nearby leases has been somewhat disappointing.

Texas Panhandle

Staging a comeback on flush production

and also on daily output was an unexpected turn of events in the Texas Panhandle district during 1929, and a sizeable boom took place during the late spring and summer months in Gray County. This county literally came into its own through a series of extensions given the oldest producing areas, and boosted its output to about 100,000 barrels daily before crude purchasers and pipe line companies forced a shut-down by refusing to buy the new production. The Bowers-Jackson and Finley-Brown areas in Gray County offer several hundred locations on proven and semi-proven oil and gas producing leases to be drilled when a market is available for the oil. Even with restrictions placed on the market outlet these two areas will account for a large number of completions during 1930.

Adverse market conditions smothered field activity in Hutchinson and Carson Counties during the year, and new completions were largely confined to operators that could line up a pipe line connection. Wheeler County came through with a large share of completions in the Panhandle for the year, but these were shallow gassers drilled to supply the rapidly growing demand for natural gas from the various trunk lines connected to wells in the county.

New Mexico

Eleven oil and gas completions were made during 1929 in Lea County, New Mexico, that qualify to be classed as wildcat producers, although the development of the older producing areas has not progressed sufficiently to determine if these new wells are extensions, or on separate structures. The county threatens to rival the Texas Panhandle in volume of oil and gas producing acreage, with gas predominating, and remains as a potential threat to the general crude market situation. Two major pipe line companies entered the county from the south during the year to serve wells in the Jal and Lea fields, as well as a few of the isolated wildcat producers, and other West Texas pipe line companies are slated to build into the county this year. Two railroads are building into the county from Texas.

The Jal and Lea pools took the jump on field work during 1929 as result of having direct pipe line connections, while exploration of the Hobbs field was delayed by refusal of pipe line companies to extend their lines to serve the four completed wells for fear of a major drilling campaign getting under way. The Lea pool, which is also called the Lynch-State area, was uncovered in March, 1920, by The Texas Company et al's Lynch 1, which pumped 1500 barrels of 31 gravity oil daily from lime at 3722-31 feet. This pool took the lead over all other oil areas in the state on daily production toward the end of the year by completing a group of unusually large pumpers. The Jal pool was one of the early oil strikes made in the county last year, and was scored through the wildcat efforts of Skelly Oil Company. Widely scattered wildcat oil producers were completed in Lea County during 1929 by Vacuum Oil Company et al, Texas Pacific Coal & Oil Company, Continental Oil Company and The California Company, and Henderson-Dexter et al.

In eastern Eddy County, a semi-wildcat completion was made on the Hugh Burch-Government permit by Grayburg Oil Company of New Mexico. This well was completed in July making 90 barrels initial at 3035-3200 feet. Continental Oil Company's Munoz 17 developed a high gravity oil producer from the Deleware sand at 6769-71 feet in April, thus giving the Rattlesnake Dome, San Juan County, a new oil horizon.

West Texas Wildcat Discoveries Mark Possible Important Fields

New discoveries, aggregating 18 in number, made in the West Texas district during 1929 established commercial oil production in two new counties and included several strikes that indicate important fields in the making. Andrews and Taylor Counties entered the ranks of producing counties in the district through successful completion of flowing wildcat wells, while Pecos and Ward Counties came through with the most completions of a wildcat class.

The Taylor-Link field, which is the second important discovery in Pecos County, was opened in June, 1929, through the wildcat efforts of the Taylor-Link Oil Company on University land from lime at 1613-35 feet, with an initial flow of 120 barrels daily.

Ector County tops the list of West Texas areas in offering the most field development during 1930, and this is due to pioneering done by Humble Oil & Refining Company, Penn Oil Company and Atlantic Oil Producing Company in developing a 380-barrel flowing well from lime at 3715-44 feet on Kloh et al fee about three miles northeast of the Connell pool. Indications are favorable for the two areas being connected by the group of tests started late in 1929 on acreage lying in between, with the Connell pool on the southwest edge of the structure. The single row of sections lying between the two producing areas are owned in fee by the University, and leases were sold in strips of 1320 feet in depth, thus forcing an aggressive drilling campaign. This Ector County area is heralded as a potential major oil producing field.

Ward County

Ward County had three widely scattered wildcat oil producers during 1929, and development that followed during the remainder of the year opened more oil producing territory in the county than given any other county in the district during the same period. Ward County's banner wildcat completion was made by Gulf Production Company's G. W. O'Brien 4, located on a huge block of leases on a line between the Shipley pool and producing areas in Winkler County. This discovery well was completed April 12 making 1500 barrels initial from sandy-lime at 2575-2631 feet, and at the end of the year was flowing 600 barrels of 38.5 gravity oil daily. Four tests that followed this completion established an oil producing area about four miles in length and more than one mile in width. Two rigs are being kept busy by Gulf Production Company in developing the field, and because of the single unit control of the acreage no market threat is pending. Alpine Oil & Development Company completed a 25-barrel pumper from sandy-lime at 2120-50 feet in October near the townsite of Grand Falls, thus giving Ward County its shallowest oil horizon, and a nominal development program is in store for the area. The joint efforts of Penn Oil Company and Atlantic Oil Producing Company uncovered a flowing wildcat oil producer from broken sandy-lime at 2348-2618 feet on the J. B. Bennett land, located about six and one-half miles northwest of the Shipley pool. This well had an initial flow of 200 barrels when completed in September, and late in 1929 was flowing 155 barrels daily. The owners were drilling two nearby tests at the close of the year.

Andrews County contributed the deepest of the new crop of discoveries in gaining its first production late in December when the jointly owned test of Deep Rock Oil Company, The California Company and Atlantic Oil Producing Company flowed 200 barrels of 29 gravity oil initial from lime at 4345-4428 feet. This well is located on the C. E. Ogden land, Section 6, Block A-46, and is expected to lead to the drilling of a half dozen nearby tests during 1930. Subsurface geology obtained from dry holes drilled to the southeast and from the log of the producer is favorable for an important oil area resulting from future development. A number of close in leases are to expire within the next year or two, while the large block of fee lands directly north of the well are to be auctioned by the University of Texas for drilling.

Two high gravity oil producers in Taylor County established its claim to a position on the oil map. J. B. Dunigan and Fred Hyer completed a 250-barrel well on the T. A. French land in October from sandy-lime at 2389-91 feet, and late in December Adams-Ferguson and Hobbs developed a 125-barrel well in the same horizon about four miles to the south. This oil production must be marketed in tank cars, and because of market conditions comparatively little field work will take place on nearby acreage during the first year.

Wildcat strikes made in Fisher, Glasscock, Howard, Mitchell and Winkler Counties during 1929 were closely related to established oil producing areas, and are of little consequence from a future drilling and production standpoint.

North Texas Discovery Wells in 1929

Company, Farm, Location	Elev.	Producing Horizon	Total Depth	Date Comp.	Initial Prod.
ARCHER COUNTY—					
Barkley-Meadows et al's L. F. Wilson 1	....	1368-1370½	1370½	3- -29	30
Guy Brown & United Prod. Co.'s W. H. Taylor 1 Taylor 1, Lot 11, Sec. 17, A. T. N. C. L.	....	1478-1480	1480	5-12-29	180
P. F. Gwynn et al's A. D. Thompson 1, Lot 16, Sec. 20, A. T. N. C. L.	....	1580-1586	1586	4- -29	100
Humble & Fain-McGaha Oil Corp.'s Logan 1-A, J. M. Taylor Sur. A-650	....	1121-1137	1137	3- -29	25
D. O. Johnson et al's L. F. Wilson 1-B, Lot 19, Geraldine Townsite	....	1555-1570	1570	2-28-29	350
Moran Drlg. Co. & Golding-Cochran's Horrey-Chandler 1, Blk. 34, Meade Pasture Sur.	1225	1426-1432½	1432½	10-24-29	60
Moran Drlg. Co. & Independent O&G Co.'s J. M. Bloodworth 1	....	1213-1215½	1215½	3-15-29	60
Petroleum Producers Co.'s A. M. Kunkle 1	....	1183-1184½	1184½	3- -29	40
Petroleum Prod. Co. & Humble O&R Co.'s Falls County Fee 1, Sec. 46	....	1170-1173	1180	4-12-29	3
Prairie O&G Co.'s J. T. Wichardson 1, Blk. 12, Thos. McCoy Sur.	1247	1180-1188	1190	3-14-29	11
Underwood Drlg. Co. et al's J. J. Perkins 1	....	1621-1623	1623	3- -29	35
COOKE COUNTY—					
Benson Bros. & American Ref. Properties' J. Haverkamp 1, H. N. Burdett Sur. A-66	....	754- 760	760	6- -29	15
Fain-McGaha Oil Corp.'s J. F. Huggins 1, Sec. 9, S. P. Ry. Sur. A-982	....	1181-1189	1189	6-24-29	175
FOARD COUNTY—					
Shell Pet. Corp.'s W. S. Tarver 1, Blk. 3, GC&SF Ry. Sur. A-117	....	2014-2053½	2053½	6- -29	200
JACK COUNTY—					
Buttram Pet. Corp.'s Boyd 1, I. N. Wright Sur. Abst. 898	940	2423-2426½	2426½	7- -29	125
P. F. Gwynn-Duke et al's B. F. Rankin 1, Jacob Ashe Sur., Abst. 8	....	2984-3007	3011	12- -29	25
Lindsey Drlg. Co. et al's Thomasson 1, Geo. Hardesty Sur.	....	2855-2895	3526	3- -29	¶2
Petroleum Prod. Co. & The Texas Co.'s H. C. Shanafelt 1, I. Hughson Sur. A-256	1280	4569-4595	4595	7- -29	1500
WICHITA COUNTY—					
W. H. Hammon et al's Bradley Bros. 2, S. Holloway Sur. A-497	....	1689-1693	1693	6- -29	25
G. H. Howell et al's Foster-Allen 1, Sec. 1, H&TB Ry. Sur. A-129	....	1787-1792	1792	5- -29	20
C. P. Sheldon-Venmex Oil Co.'s Whittenbach 1, Sec. 303, Waggoner Col. Sur.	....	1916-1933½	1933½	7- -29	20
WILBARGER COUNTY—					
Dixie Oil Co.'s Waggoner 1, Sec. 4, Blk 5, H&TC Ry. Sur.	....	2387-2395	2395	7- -29	110
Easter Oil Co.'s Waggoner 1-C, Sec. 25, Blk. 4, H&TC Ry. Sur.	....	1911-1927	1927	2- -29	160
Laalaph Oil Co.'s Waggoner 1, Sec. 10, Blk. 4, H&TC Ry. Sur.	....	1997-2004	2014	1- -29	250
Lewis & Payne's Waggoner 1, Sec. 17, Blk. 4, H&TC Ry. Sur.	....	2413-2435	2436	4- -29	400
YOUNG COUNTY—					
C. W. Boller et al's J. K. Thomas 1, Sec. 155, TE&L Sur.	....	1000-1003½	1003½	4- -29	70
Pat Fowler et al's R. E. Hill 1, Sec. 195, TE&L Sur.	....	1044-1045	1045	10- -29	45
Hinson & Tidwell's Mizzell-Perkins 1, Sec. 20, Brazos Indian Reserve	....	2665-2685	2685	9- -29	200
Dr. E. R. Riggs et al's Allison-Keeter 1, Sec. 150, TE&L Sur.	....	859- 864	864	12- -29	225
T. G. Shaw et al's J. Kissinger 1, John Conner Sur. A-57	....	2511-2531	2531	4- -29	85
W. R. Stafford et al's E. F. Brown 1, Sec. 290, TE&L Sur.	1169	554- 557	557	7- -29	55
The Texas Co.'s G. P. Stewart 1-B, Sec. 35, BBB&C Ry. Sur.	....	729- 742	742	3- -29	30
Transcontinental Oil Co., W. H. Corbett 1, Ruthy Compbell Sur.	1237	4006-4045	4590	9- -29	400
Wise & Jackson's F. M. Cullers 1, Sec. 2, C. T. Ry. Sur., Abst. 2166	....	578- 586	586	8- -29	40

Central West Texas Discovery Wells in 1929

Company, Farm, Location	Elev.	Producing Horizon	Total Depth	Date Comp.	Initial Prod.
CALLAHAN COUNTY—					
E. P. Campbell & Humble O&R Co.'s M. Alexander 1, Sec. 24, E. T. Ry. Sur.	....	1035-1055	1055	7- -29	100
COLEMAN COUNTY—					
Herbert Oil Co.-McDonald & Campbell's Weaver 1, Lot 9, A. Gabel Sur. 271	....	1823-1830	1830	2- -29	200
Humphreys Bros. & Shup's Sanger Bros. 1, Sec. 61, H&TC Ry. Sur.	....	1175-1183	1762	5- -29	¶11
C. M. Joines et al's Stewardson 1, Sec. 96, E. T. Ry. Sur.	1494	1457-1466	1466	10- -29	25
Howard Samuels et al's J. A. Robertson 1, Sec. 224, Elijah Votaw Sur.	1410	1046-1056	1224	1 -29	20
Simms Oil Co.'s T. L. Moore 1, Sec. 13, Alex White Sur.	....	359- 370	370	3- -29	¶1
Taylor-Link Oil Co.'s M. C. Barker 1, Sec. 105, E. T. Ry. Sur.	1646	683- 685	685	6- -29	200
Texas Pacific Coal & Oil Co.'s R. C. Gay 1, Mary Ann Fisk Sur.	1555	1363-1366	1367	1- -29	10
EASTLAND COUNTY—					
J. A. Bearman & Humble O&R Co.'s J. E. Kincaide 1, Sec. 80, Blk. 4, H&TC Ry. Sur.	....	3474-3573	3573	11- -29	220
Hoffer Oil Corp.-Thomas & The Texas Co.'s Maggie Gray 1, Sec. 485, S. P. Ry. Sur.	1496	3446-3456	3456	6- -29	850
PALO PINTO COUNTY—					
Ashe Synd. et al's J. B. Hart 2, Sec. 29, Blk. 3, T&P Ry. Sur.	....	3492-3943½	3943½	5- -29	¶6-80
Prairie O&G Co. & Amerada Pet. Corp.'s Allen-Ritchie 1, Sec. 2, L. J. Pitts Sur. A-1289	....	1550-1556	1556	12- -29	100
SHACKELFORD COUNTY—					
Oyster-Rife & Taylor's Davis Bros. 1, Sec. 15, T.&P Ry. Sur, Blk. 14	....	1606-1610	1614	6- -29	35
S. B. Owens & Sedgwick O&G Co.'s Morris-Buie 1, Sec. 200, E. T. Ry. Sur, Blk. 10	....	1585-1599	1601	7- -29	35
THROCKMORTON COUNTY—					
Craig Morton et al's Mathews 1, Sec. 227, E. T. Ry. Sur., Blk. 14	....	1280-1281	1281	3- -29	35

Southwest Texas Discovery Wells in 1929

Company, Farm, Location—	Elev.	Top Chalk	Producing Horizon	Total Depth	Date Comp.	Initial Prod.
CALDWELL COUNTY—						
Al. Buchanan et al's L. K. Brown 1 1500 ft from se and 150 ft from sw lines 263-ac tract, C. M. Cannon Sur.	445	*1740	1764-2053	2053	8- 1-29	75
GUADALUPE COUNTY—						
The Texas Co.'s Dallas Wilson 1, Jacob Darst Sur.	521	2237	2610-2611	2611	7-18-29	1500
Simms Oil Co.-Penn Oil Co. et al's J. L. Manford 1, Jas. Hodges Sur.	442	....	2404-2418	2418	8-28-29	2000

East Central Texas District Discovery Wells in 1929

Farm and Location—	Elev.	Top Chalk	Producing Horizon	Total Depth	Date Comp.	Initial Prod.	Oil Gravity
HILL COUNTY—							
J. A. Harper-Latson et al's J. T. Jones 1, A. C. Graves Sur. (½ Mi. east of Mt. Calm)	536	640	680- 688	688	6-21-29	125	31-32
VAN ZANDT COUNTY—							
Pure Oil Co.'s W. T. Jarman 1, 150 ft. from SE corner Sec. 2, Nacogdoches County School Land	497	2297	2610-2710	2710	10-14-29	2000	35-36

(See page 132)

(See page 131)

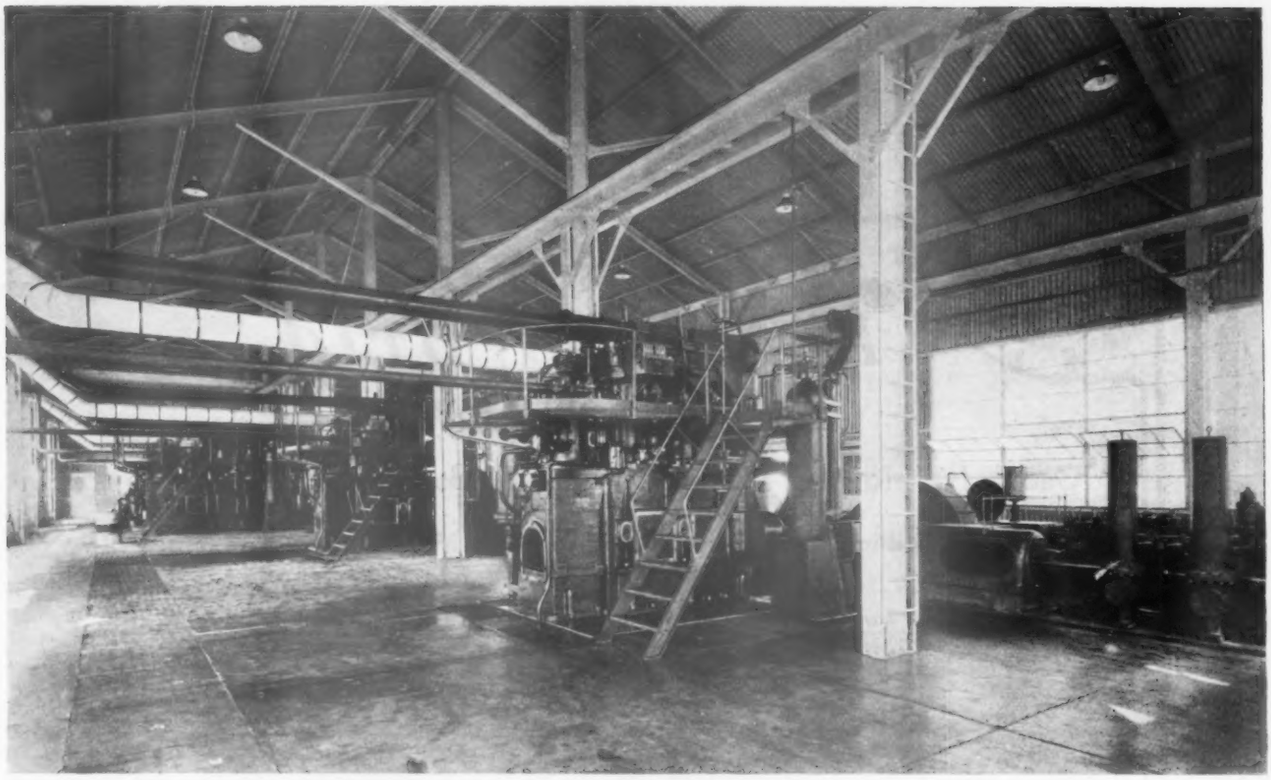
West Texas District Discovery Wells in 1929

Company-Farm-Lcn.—	Elev.	Top Salt	Top Lime	Producing Horizon	Total Depth	Date Comp.	Initial Prod.	Oil Gr'v'ty
ANDREWS COUNTY—								
Deep Rock Oil Co. et al's C. E. Ogden 1, 330 ft fr SW cor SE¼ Sec. 6, Blk. A-46, P.S.L.	3206	1750	4050	4345-4414	4428	12-18-29	200	29
ECTOR COUNTY—								
Humble O.&R. Co. et al's Kloh 1, 330 ft N & 2640 ft E of SW cor Sec. 7, Blk. 44, T.&P. Ry. Sur. T-3s	2925	1230	3410	3715-3744	3744	10-11-29	380	34
FISHER COUNTY—								
Roeser-Pendleton, Inc. & Amerada Pet. Corp.'s A. T. Haught 1-A, 590 ft s & 1320 ft e of NW cor SW¼ Sec. 191, BBB&C Ry. Sur.	1803	....	3080	3120-3127	3127	8-28-29	135	36
GLASSCOCK COUNTY—								
World Oil Co.'s McDowell 1-C, 1650 ft fr n and 2310 ft fr e lines Sec. 21, Blk. 34, T-2s, T&P Sur.	2530	....	2260	2351-2398	2398	4-28-29	225	28
HOWARD COUNTY—								
Magnolia Pet. Co.'s Minna Hyman 1, 1320 ft w and 1220 ft n of SE cor Sec. 88, Blk. 29, W&NW Ry.	2370	....	....	1308-1317	1317	6-17-29	16	..
MITCHELL COUNTY—								
Simms Oil Co.'s Ellwood 2, 990 ft w and 1980 ft n of SE cor Sec. 29, Blk. 18, S. P. Ry. Sur.	2237	....	....	598- 606	606	3-29-29	¶4½	..
PECOS COUNTY—								
Buell-Hagan et al's University 1-B, 660 ft w and 330 ft n of SE cor Sec. 36, Blk. 18	2760	940	....	1320-1332	1332	6-13-29	12	28
Cardinal Oil Co.'s F. E. Toborg 1, 330 ft fr se cor w½ Sec. 539, A&B Sur. Abst. 3	2312	....	....	355- 369	369	8-23-29	300	21
Cranfill-Reynolds Co. et al's J. Masterson 1, 330 ft fr se and sw lines Sec. 104, Blk. 10, H&GN Ry. Sur.	2425	....	....	1249-1270	1495	12-15-29	50	27
Phillips Pet. Co.'s I. T. Pryor 1, 440 ft fr nw cor Sec. 78, Blk. "O-W," T. M. Ry. Sur.	2951	....	....	1345-1367	4376	5-21-29	180	26
Taylor-Link Oil Co.'s University 1, 533 ft n and 1040 ft e of SW cor Sec. 30, Blk. 16	2510	835	1385	1613-1628	1635	6-20-29	120	28
R. D. Webb et al's Fee 1, 1885 ft e and 410 ft n of SW cor Sec. 105, Blk. "O-W," T.M. Ry. Sur..	....	....	....	467- 472	472	7-28-29	¶6	..
TAYLOR COUNTY—								
Adams-Ferguson-Hobbs' Lowe 1, 150 ft s and e of NW cor Sec. 19, League No. 120, G.C.S. L. Sur.	1970	....	....	2383-2390	2390	12-31-29	125	37
J. B. Dunigan-Fred Heyer's T. A. French 1, 2811 ft s and w of NE cor of S½ W. R. Willis Sur No. 122	....	....	....	2389-2391	2391	10-10-29	250	39
WARD COUNTY—								
Alpine Oil & Dev. Co.'s J. F. Boogher 1, 2456 ft fr NW and 854 ft fr SW lines Sec. 11, Blk. 5, H. &T.C. Ry. Sur.	2443	760	....	2120-2150	2150	10-14-29	25	35
Gulf Prod. Co.'s G. W. O'Brien 4, C NW¼ SW¼ Sec. 19, Blk. "F," GMMB&A Sur.	2657	1290	2350	2575-2631	2631	4-12-29	1500	38
Penn Oil Co. & Atlantic Oil Prod. Co.'s J. B. Bennett 1, 330 ft fr n cor of S¼ Sec. 16. Blk. 34, H&TC Ry. Sur.	2581	....	2205	2348-2618	2618	9-28-29	200	35½
WINKLER COUNTY—								
M. J. Bashara's Fee 1, 990 ft fr s and 2310 ft fr w W lines Sec. 17, P.S.L. Sur., Blk. B-3	2883	....	2310	2471-2483	2483	5- 5-29	¶19	..

¶ Indicates million feet of gas.

New Mexico Discovery Wells in 1929

LEA COUNTY—								
Cranfill-Reynolds Co. and Magnolia Pet. Co.'s Meyer 1, Sec. 22-14s-36e	3337	1312	2968	3175-3438	3438	8-15-29	¶70	..
Continental Oil Co. & The California Co.'s Lockhart 1, Sec. 31-21s-36e	3628	1785	3330	3805-3990	3990	3-14-29	275	34
Continental & The California Co.'s Lynn 1, Sec. 26-23s-36e	3344	1450	2790	3224-3650	3930	3- 8-29	¶30	..
Continental & The California Co.'s Meyers 1, Sec. 26-20s-37e	3508	1365	2795	3540-3838	3915	3- 5-29	¶1½	..
Gypsy Oil Co.'s Mattern 1, Sec. 24-21s-36e	3519	1380	2970	3012-3482	4150	10-24-29	¶4	.
Henderson-Dexter et al's Jewett-McDonald 1, Sec. 18-20s-34e	3631	1092	3163	3522-3594	3612	6-12-29	65	34
Skelly Oil Co.'s Joyner 1, Sec. 26-25s-36e	3029	1125	2992	3248-3331	3339	1-30-29	600	29
The Texas Co. et al's Bertha Lynch 1, Sec. 34-20s-34e	3749	1760	3340	3722-3731	3731	3-31-29	1500	31
The Texas Co. et al's C. W. Shepherd 1, Sec. 6-26s-37e	2970	1130	2643	3206-3295	3318	1-15-29	1600	28
Texas Pacific Coal & Oil Co.'s State 2, Sec. 21-23s-36e	3416	1560	3255	3705-3757	3757	10-13-29	690	29
Vacuum Oil Co.'s State 1, Sec. 13-17s-34e	4019	1762	4330	4466-4900	4900	6- 9-29	125	31



This company bought 12 units, and then 19 more before all on the first order were in operation

THIS Texas station of a prominent pipe line company has its pumps driven by two 225-b.hp. and two 450-b.hp. McIntosh & Seymour Diesel Engines.

These four units, shipped here in December, 1928, were part of an order for twelve.

Before all of the twelve were installed, the same pipe line operating company ordered *nineteen more*, all of McIntosh & Seymour make.

Another pipe line company that installed its first McIntosh & Seymour Engine in 1916 has now bought 57 units. A third that started to buy McIntosh & Seymour Engines in 1919 has now purchased 24 installations. A fourth has 30 installations.

As repeat orders like these can come only after thoroughly satisfactory service, you are safe in depending upon McIntosh & Seymour Engines to carry high pumping loads for long periods without fatigue or shutdown, and to show consistently low fuel, operating and maintenance cost *year after year.*

You can move a McIntosh & Seymour Engine from one pumping station to another at reasonable cost when rearrangement of pumping power demands, and you will find the economy as good on the new foundation as on the old. So many changes of this kind have been made that we have lost track of the names of many of the stations in which our installations are located.

Standardization of most of the parts and stocks of these standard parts constantly on hand enable us to make up new units of any capacity for prompt delivery.

Let us quote on your next driving units.

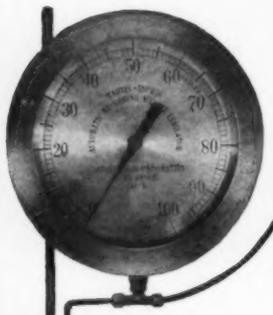
McINTOSH & SEYMOUR CORPORATION, Auburn, N. Y.

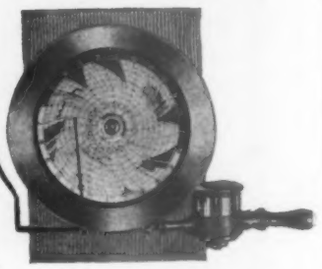
Division of American Locomotive Company

New York City	Kansas City, Mo.	Jacksonville, Fla.	Houston, Texas	San Francisco
149 Broadway	1016 Baltimore Ave.	412 Bisbee Bldg.	2703 Esperson Bldg.	514 Matson Bldg.

McINTOSH & SEYMOUR DIESEL ENGINES

MARTIN-DECKER AUTOMATIC RECORDING WEIGHT INDICATOR





The Deepest Well
In The World
9350 Feet Deep

Oscar R. Howard's Hathway No. 7, Santa Fe Springs, California

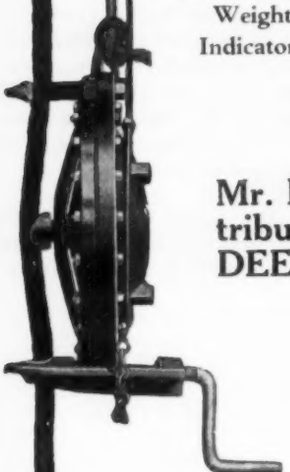
The Drilling Crew With Superintendent M. L. Barough in Front of Their DEPENDABLE Weight Indicator.

Over 90% of All Rotary Equipped Wells in the United States and Canada Drilling Below 2500 ft. Are Equipped with Martin-Decker Weight Indicators

Reading from right to left the men in the picture are:

M. L. Barough, Superintendent.
Geo. Bower, Driller.
Frank Sherman, Derrickman.
Fred Angelton, Cathead.
Chas. Eckland, Helper.
Jessie Nusko, Helper.

Mr. Barough says: "The Weight Indicator is the strongest contributing mechanical factor in making holes STRAIGHT and DEEP. We had no serious fishing jobs on this hole."



MARTIN-DECKER CORPORATION

Formerly

Martin-Loomis Corporation

Mid-Continent Distributors
Reed Roller Bit Company
Houston, Texas

3433 Cherry Ave.,
LONG BEACH
CALIFORNIA

Foreign Distributors
Oil Well Supply Company
Pittsburgh, Pa.

WEIGHT RECORDING, MEASUREMENT AND CONTROL

Mexia-Corsicana Area Has Low Rate of Decline in 1929

By H. H. KING
Staff Representative

CORSICANA, Texas.—Accumulated production from the eight fields producing from the Woodbine sand formation in the East Central Texas district was boosted to 227,170,394 barrels by the addition of 5,695,338 barrels during 1929. The percentage of production decline in 1929 was the lowest recorded since the district reached its peak in annual output in 1923. The discovery of the Van field late in 1929 is being accompanied by a steady but conservative development campaign, thus assuring the district a gain in annual production beginning in 1930 for an indefinite period.

The Van field, located in Eastern Van Zandt County, ranks as the most important strike in the Woodbine sand formation since the discovery of the Wortham field in November, 1924, due to the thickness of the sand horizon and large prospective producing area. The pooling of acreage in the Van field on November 1, 1929, for unit development by the Pure Oil Company, discoverer and major lease owner, precludes a repetition of the competitive drilling that has taken place in previous Woodbine sand fields, but an average production of more than 10,000 barrels daily for 1930 is promised. This forthcoming production will more than offset the natural decline of the other fields.

The production decline curves on the older fields in the district straightened out somewhat during 1929 due to steady operation of the 1161 pumping wells, with all traces of flush output absorbed in previous years. Early production restrictions applied to flowing wells in the Van field held its crude yield during 1929 to 150,068 barrels. The seven older fields declined 2,182,488 barrels during 1929 as compared to the year previous, while a loss of 4,339,917 barrels was sustained in 1928. The district produced 5,695,338 barrels in 1929 as compared to 7,877,826 barrels in 1928; 12,217,743 barrels in 1927 and 20,088,317 barrels in 1926. Such annual declines were rapidly removing the district from the picture as an important crude source, and the discovery of the Van field was made at an opportune time.

The district passed the 200 million barrel mark on crude yield from the Woodbine sand formation in November, 1926, and is now in line to eventually pass the three hundred million barrel figure as result of the new discovery and recent check in rate of decline of some of the older fields.

Allowing only 40 acres for the developed portion of the Van field, the district is credited with having 7935 acres of productive leases in the Woodbine horizon. This acreage has produced an average of 28,629 barrels per acre.

Corsicana-Powell

The Corsicana-Powell field, which passed the 100,000,000-barrel mark on crude yield during the first one-half of January, 1929, boosted its total oil recovery to 102,672,137 barrels at the close of 1929 through having produced 2,776,615 barrels for the past year to maintain its lead over other fields in the district. With an estimated productive area of 2650 acres, this field has yielded an average of 38,744 barrels per acre. This exceeds all other fields by a wide margin on recovery per acre. However, a small percentage of the gross production has been obtained from shallow sands tapped by the drilling of twin locations to deep wells,

The total crude production of the eight Woodbine sand fields in the East Central Texas district from date of discovery to the close of 1929 is listed below with the individual field output for 1929 shown by months:

Prior to	Corsicana -Powell	Mexia	Wortham	Richland	Currie	Nigger Creek	Cedar Creek	Van	Total Production
Jan. 1, 1929.....	99,895,522	84,825,370	21,418,312	6,339,226	5,995,788	2,767,093	233,745	.....	221,475,056
Jan. 1929	266,088	176,978	40,358	12,156	13,497	14,614	6,907	.....	530,598
Feb. 1929	234,561	156,644	35,869	12,381	14,680	11,085	4,391	.....	469,611
March, 1929	254,957	166,363	39,423	11,839	13,961	10,893	4,457	.....	501,893
April, 1929	251,009	171,786	40,048	12,422	12,989	11,522	4,437	.....	504,213
May, 1929	247,837	168,252	37,052	11,710	13,416	10,462	3,338	.....	492,067
June, 1929	231,935	156,618	29,679	11,101	12,871	8,898	2,483	.....	453,585
July, 1929	238,419	163,122	32,492	10,564	14,416	11,457	3,138	.....	473,608
Aug. 1929	219,727	161,537	32,957	11,793	12,866	8,199	2,670	.....	449,749
Sept. 1929	214,006	149,920	31,164	8,864	13,563	7,562	2,741	.....	427,820
Oct. 1929	214,798	156,010	31,654	9,467	11,894	8,235	2,708	10,622	445,388
Nov. 1929	201,191	139,960	30,373	9,993	11,940	8,833	1,565	8,138	411,993
Dec. 1929	202,087	141,059	29,741	9,001	12,337	7,283	1,997	131,308	534,813
Totals for 1929..	2,776,615	1,908,249	410,810	131,291	158,430	119,043	40,832	150,068	5,695,338
Grand totals ...	102,672,137	86,733,619	21,829,122	6,470,517	6,154,218	2,886,136	274,577	150,068	227,170,394

The productiveness of the eight fields producing from the Woodbine sand formation in the East Central Texas district is illustrated by the accompanying table:

Field—	Date Discovered	No. producing acres	No. producing wells	Crude yield per acre	Total production to Jan. 1, 1930
Corsicana-Powell	1-7-23	2,650	524	38,744	102,672,137
Mexia	11-25-20	3,720	396	23,315	86,733,619
Wortham	11-22-24	715	113	30,530	21,829,122
Richland	Dec. 1923	240	53	26,960	6,470,517
Currie	Oct. 1921	375	37	16,411	6,154,218
Nigger Creek	7-8-26	170	31	16,977	2,886,136
Cedar Creek	8-24-27	25	7	10,983	274,577
Van	10-14-29	40	4	3,752	150,068
Totals		7,935	1,165	28,629	227,170,394

the Miller Sand Pump

cuts cleaning costs

Chisel Bottom

will save the expense of running tools and its chisel shape prevents sticking in tightly packed sands.

Bailer Bottom

will speed up production in cavy holes by time saved in picking up cuttings.

Star Bottom

used for cutting the sand loose and preferred by some to the Chisel Bottom.

Sand Pump Bottom shown in pump

4 *type bottoms meet every need*

Miller design is different. You can only get this exclusive construction by which the wire line connects directly to the plunger permitting use of a 25 or 30 foot tube eliminating use of a rod—in the Miller, the sand pump that is the field man's choice, because of simplicity and operating efficiency that cuts down cleaning time.

Constructed of National Seamless tubing and Sivyer Steel Castings. It is made to stand abuse. All steel throughout eliminating use of leather washers.

Furnished with various type bottoms illustrated to meet any condition. Made in 2½, 3, 3½, 4, 4¼, 5, 5½, 7, and 9 inch diameters and 20, 25 and 30 foot lengths.

Send for circulars and price list. The Miller Sand Pump is sold by the leading supply stores or direct from the manufacturer.

Patented
March 1, 1921—No. 1370340
January 20, 1926—No. 1523604

MILLER

Combination Bailer & Pump Co.

General Offices and Plant
SAPULPA, OKLAHOMA
U. S. A.

or through the ripping of casing in exhausted Woodbine sand wells.

Discovery honors for oil production from the Woodbine horizon is held by the Mexia field, which is also the largest in area. This field began producing in November, 1920, and up to the close of 1929 had yielded 86,733,619 barrels of oil from 3720 acres of producing area. This represents a recovery of 23,315 barrels of oil per acre. The Mexia field has not been drilled as closely as the Corsicana-Powell field, and is taking a slower rate of decline for this reason.

The Wortham field, which experienced a rapid-fire drilling campaign during the first four months after its discovery in November, 1924, by the late Colonel A. E. Humphreys and associates, is now barely averaging 1000 barrels daily. However, this field increased its total yield to 21,829,122 barrels up to the close of 1929, or an average recovery of 30,530 barrels per acre, thus holding second position for the district on oil production per acre.

Currie field is maintaining the straightest production curve of any field in the district, although it is the second oldest, and during 1929 produced slightly more oil than the Richland field. The former produced a total of 6,154,218 barrels, or an average of 16,411 barrels per acre, while Richland field's total yield amounts to 6,470,517 barrels, or an average of 26,960 barrels per acre.

Mexia, Wortham, Currie, Richland and Corsicana-Powell fields are producing from the so-called Mexia fault zone, and it was not until the discovery of the Nigger Creek field in July, 1926, by Transcontinental Oil Company and associates that operators could be convinced commercial production existed along parallel fault zones. The strike at Nigger Creek led to the opening of the Cedar Creek field on August 24, 1927, by W. A. Reiter, Will I. Lewis and Moutray Oil Company, thus establishing two producing areas to the west of the Mexia fault. Nigger Creek has produced 2,886,136 barrels, or an average yield of 16,977 barrels per acre, while Cedar Creek field has averaged 10,983 barrels per acre through having produced 274,577 barrels up to the close of 1929.

Further attempts made during 1929 to develop oil production from the Trinity sand horizon on the west side of the Mexia field were unsuccessful when C. F. Lytle and associates' Thompson 4 encountered water at 6090 feet. This failure was a hard blow to the operators in the district, but the discovery at Van opened a new era in the development of production from the Woodbine sand, and new fields can be expected to result from the testing of the many blocks of wildcat leases acquired by companies and operators after the new strike. About 100 drilling blocks were leased during the last four months in 1929, and most of these are located east of previous wildcat drilling campaigns in the district.

Pipe as *fine* as can be made

Take a length of Bethlehem Steel Pipe. Test it in any way you please. Note its strong weld, its freedom from scale, its exceptional softness and ductility. See how easily it is cut and threaded, how clean and strong the threads are!

This is quality pipe! Pipe that will meet any test. Pipe that you can use with confidence on the most difficult jobs, where the requirements are most exacting—pipe that is as fine as can be made.

Bethlehem maintains at Los Angeles, Calif., and at Houston, Texas, well-assorted stocks of line pipe, ready for immediate shipment. Both threaded and coupled and plain-end pipe are included in these stocks.

BETHLEHEM STEEL COMPANY
General Offices: **Bethlehem, Pa.**

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis.

Pacific Coast Distributor: Pacific Coast Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Honolulu.

Export Distributor: Bethlehem Steel Export Corporation, 25 Broadway, New York City.

BETHLEHEM STEEL PIPE

Unit Control Gaining Favor *In* Oklahoma-Kansas

By WARREN BAKER
Staff Representative

NINETEEN hundred and thirty should see conservation, both in development and production of crude, continue as the outstanding factor in the Oklahoma oil industry. It depends upon the relation of production and consumption of crude oil and its by-products whether it shall continue throughout the year unbroken, but indications are that whenever the need of prorating crude oil recovery is seen that Oklahoma oil operators will willingly shoulder the burden.

This should prevent a further slump in the price of crude oil and refined products, as well as slow up development in wildcat areas, and this should bring about a more uniform price in acreage, royalty and producing properties.

Indications are that there will be a new factor in the conservation work. This is unit operation or unitization. During the latter part of 1929 development of public opinion along the unitization line did much good work and several major oil companies have already tried out the idea and found it successful and economical as well as a conservation method. Work along the unitization idea is now getting down to concrete bottom and much can be expected of it during 1930.

Signs already point to this in wildcat areas of western Oklahoma and several spots in central Oklahoma. Major companies are now trying to wipe out the small tracts scattered here and there, and whenever this is impossible to secure an unit operation plan for the area. A stronger relation between conservation and unitization was pointed out last year with major companies doing most of their buying direct, eliminating the small lease broker, and taking larger tracts of acreage. At the same time the royalty business was deevloping into a division of the petroleum industry with a group of strong companies capable of playing the game of give and take along with the oil operators and producers.

Oklahoma has many small companies, in good financial standing and nice holdings, and many of these are expected to be taken over by major companies, and at the same time there is a growing tendency among the smaller companies to consolidate. The later part of 1929 saw several companies taking such steps, such as Sunray Oil Corporation, Homaokla Oil Company and Operators Oil Company consolidation under the name of Sunray Oil Corporation. Several large mergers among the bigger companies may also be expected.

Prospects for Development

The year 1929 saw a growing trend of deeper drilling in the state and this should continue during 1930. The Oklahoma City field was the crowning light of 1929 along this line and its remarkable success indicates that such development should become stronger in the future.

Areas due to get deevlopment during the coming year include all of western Oklahoma, Oklahoma and adjacent counties, and the usual work in the Greater Seminole district. These territories have been worked over by geologists and geophysical engineers. Much leasing and blocking has been done and considerable wildcat development may be expected. However, an over abundance of wildcat work is not looked forward to, in view of the favorable impression Oklahoma oil operators got of conservation and its work during 1929.

The Oklahoma City field is just now entering its prime, with more wells to be completed within the next few weeks than it has seen completed heretofore. This should result in a good increase in the potential production; however, the actual output of the pool depends upon the construction of additional outlets. Some new facilities for transporting oil from the field may be built during 1930, but the present capacity should not be increased to the point where the field may oversaturate the consumption powers of the territory depending upon Oklahoma as its petroleum source.

Before the middle of the year this field should be defined and work there should slump accordingly, which coupled with the water intrusion upon the lime producing horizon may materially lower its position as the state's "big threat." Special attention should be paid to the completion of Detrital sand zone wells, as the future of the field depends upon this horizon.

When the Oklahoma City field is defined and work commences to slump there the adjacent territories will come into the play. Already there are several wildcats drilling in the region, with others laying off until work in the city pool is finished. Oklahoma County has several other favorable looking structures and during 1930 should lead in wildcat exploration work.

There are several trends of development from the Oklahoma City pool that should be explored further during 1930. One runs direct north toward the McCully area in Logan County, where much leasing has taken place. To the northeast many companies look favorably upon a possible production trend running toward the Chandler pool. The area east and south toward Greater Seminole has somewhat gone into the background from a year ago, but some work in that region may be expected. There will be some development in Cleveland and McClain Counties, and up the Canadian River northwest into western Oklahoma.

Wildcat work in the above outlined areas and in western Oklahoma will be of particular interest during 1930. As a whole work in western Oklahoma should see an increase in drilling. This vast area received its greatest play during 1929, with several very interesting and promising tests having been drilled. Formations lie very deep in the territory, but lack only one producer to commence a more intensified development.

Doubtlessly the Greater Seminole district will see the finding of several small pools during 1930, but no large fields are anticipated. The district slipped to a very large extent during 1929, but continues to produce much oil.

The East Earlsboro field, chief among the new pools last year, seems about ready to step on the skids. It is pretty well defined and most of the locations within the proven area have been completed. The Konawa pool, recently found in southwestern Seminole County, appears to be a good Cromwell sand field, but must await additional development before it is seriously considered.

Kansas

The year 1930 probably will see as much drilling in Kansas as was witnessed during 1929, when drilling development reached the greatest record in the past decade and a more general exploration than heretofore seen in the state was experienced. It will, however, still remain an area of interest and several important developments are anticipated.

McPherson County is expected to be the most active region during the year. It is out in front of the remainder of the counties at the start of 1930 due to the Voshell and Ritz pools. The Voshell pool at this time appears to be the largest thing on the horizon for Kansas. The extent of its size is not

(Continued on page 214)

Easton Cars Carry *the* Burden of Foreign Oil Operations

from

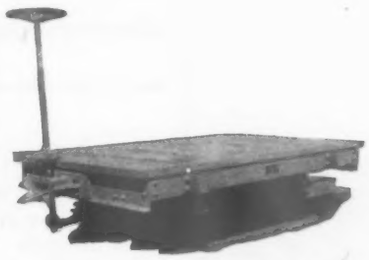
SHIP TO SHORE

and from

SHORE TO FIELD

Serving

WAREHOUSES, STORAGE DEPOTS, REFINERIES, TANK FARMS, DRILLING RIGS, PIPE LINE AND PRODUCTION OPERATIONS



No. 5083. Typical Four-Wheel Platform Car. Wooden or Steel Floor—Any Gauge can be furnished—Capacities from two tons up — Either Hand Pushed or Locomotive drawn. This car is in use in the oil fields.

No. 13634 Rocker Dump Car—Furnished for from 18″ to 36″ gauge track. One cubic yard or one cubic meter capacity.

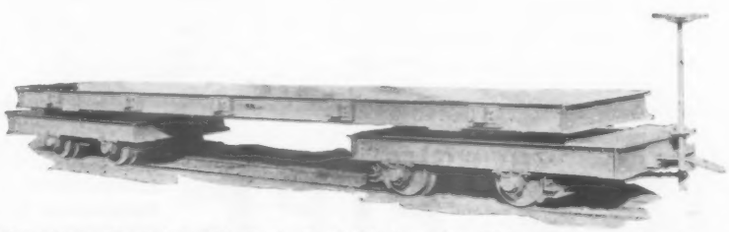
Platform Cars mounted with Foamite Fire Fighting Equipment, in service in the oil fields of South America. Suitable for any service.

In foreign oil fields, lacking common carrier facilities, oil operators must construct their own railways. Machinery, supplies, and equipment are unloaded from ship's rail onto EASTON CARS and are transported from pier-head to operating bases ashore, thence across the treacherous swamps of Venezuela and Colombia and the arid deserts of Ecuador and Peru. In the Maracaibo Basin, fire-fighting equipment is mounted on Easton cars which may be rushed to any point in the lake-shore district where conflagrations may occur.

EASTON CAR

& CONSTRUCTION CO.

EASTON, PENN., U. S. A.



No. 86049. Typical Double Bogie Truck Platform Car. This particular car in use in Venezuela—20 feet long—four feet wide—ten tons capacity—30″ gauge track. Can be had in any size platform—any capacity—any gauge.

Please send me Catalogues or Bulletins descriptive of Industrial Railway Equipment. I am particularly interested in:

.....

.....

Name .....

Company .....

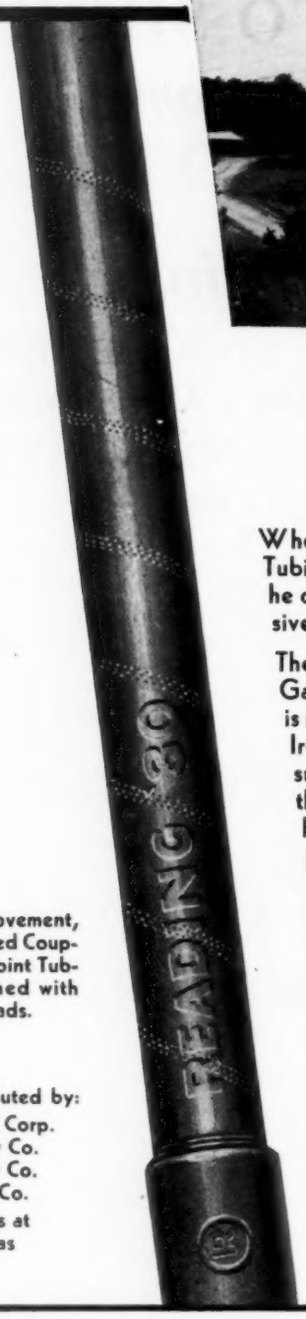
City .....

Position .....

Street and Number .....

State .....

Reading 5-Point Tubing in use in the Seminole



"Old Man Trouble" Packs His Grip

When you start using Reading 5-Point Galvanized Tubing, "Old Man Trouble" packs his grip. He knows he can't do anything to tubing that stands the corrosive conditions of the toughest fields!

The reasons for the longer life of Reading 5-Point Galvanized Tubing are simple. First, this Tubing is made of the original, Genuine *Puddled* Wrought Iron — *inherently* resistant to rust. Second, the surface texture of Reading 5-Point Tubing holds the galvanizing with a bulldog tenacity — and holds at least twice as much of it as do other pipe materials! No wonder that Reading 5-Point Galvanized Tubing has set the standard of endurance where corrosive conditions are most severe!

Be sure you get Reading Genuine *Puddled* Wrought Iron — our name and indented spiral mark protect you.

As an added improvement, all Reading Galvanized Couplings for Reading 5-Point Tubing are now furnished with galvanized threads.

* * *

Reading pipe distributed by:
Frick-Reid Supply Corp.
Bradford Supply Co.
Republic Supply Co.
Superior Tube Co.
Our own stocks at Houston, Texas

READING IRON COMPANY
Reading, Pennsylvania

Atlanta · Baltimore · Cleveland · New York
Philadelphia · Boston · Cincinnati · St. Louis
Chicago · New Orleans · Buffalo · Houston
Tulsa · Seattle · San Francisco · Detroit
Pittsburgh · Los Angeles · Kansas City

5 POINT PIPE
READING
GENUINE PUDDLED WROUGHT IRON

GENUINE PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM 1/8 TO 20 INCHES

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Wrought Iron

Deep Drilling Around Old Domes Boosts Gulf Coast Recovery

By JACK LOGAN
Staff Representative

IT is now 29 years since Captain Anthony F. Lucas brought in his famous Spindle Top gusher, which furnished the Texas-Louisiana Gulf Coast its first oil production. Since then approximately 750 millions of barrels of crude have been recovered from fields of the Coastal Plain. During that time there were various boom years when it seemed that the all-time production peak had surely been reached—that there would never again be as much oil produced by the Gulf Coast in a single year. There were some periods even, such as the lean years of 1912 and 1913, with all Coastal production aggregating less than 9,000,000 barrels annually, when it seemed that the point of actual exhaustion was near at hand.

Repeatedly, however, new fields have come in to bolster or increase production, and during the past 10 years the yearly output has never fallen below 30 millions of barrels. With the rejuvenated Spindle Top field booming in 1927, yielding 21½ millions of barrels of oil, the Gulf Coast during that year established a new production record of 54½ millions of barrels. In 1928 there was a decrease of seven millions of barrels for the whole Gulf Coast, with Spindle Top declining by about that amount. But in 1929, even though Spindle Top showed a further decline of four millions of barrels, the Gulf Coast as a whole gave up the greatest annual yield of its entire history. Producing 57,405,700 barrels of crude, it surpassed the 1928 record by 10 millions of barrels and that of the Spindle Top-boom year of 1927 by three millions.

Casually venturing a conjecture as to the cause for the record production of 1929, one familiar with activity in the Gulf Coast might at first thought attribute it primarily to development of new production on numerous domes discovered in recent years by geophysical instruments. But as a matter of fact, although a large number of fields of that type were proven during 1929 to be commercially productive, the yield from them was relatively small. Those new domes are controlled for the most part by single companies, and they are being developed slowly, cautiously, scientifically—with drilling directed primarily to finding geological information for future operations, rather than to development of production now, with the cloud of over-production hanging persistently over the industry. Further information regarding activity on these geophysically discovered domes is presented in a special article in this issue.

Older Fields Responsible

In reality the fields which were mostly responsible for the increased Gulf Coast crude yield of 1929, all of them located in the Texas portion of the Gulf Coast, were as follows: Barbers Hill, Humble and Pierce Junction, old fields where new deep sands were developed with noteworthy success; Refugio, which developed into one of the leading Coastal oil fields after having been strictly a gas field for nearly a decade; Clay Creek, Washington County, where an important field has been established on an interior salt dome that was found in 1928 on basis of surface indications; Raccoon Bend, Austin County, also an interior field, a little older than Clay Creek, but now producing from new deep sands; South Liberty, one of the older domes, where shallow sand discoveries late in 1928 held production relatively high during 1929; and Sugar Land, Fort Bend County, a recently discovered deep salt dome, where 43 out of a total of 44 tests drilled in 1929 were completed as producing wells. Only Sugar Land among all the above named fields owes its discovery to geophysical instruments.

The increase of production in those fields during 1929 as compared with the previous year is shown in the following table, which lists all Coastal fields where 1929 production exceeded that of 1928 by more than 500,000 barrels:

Texas Gulf Coast

Field	Bbls. Production 1929	1928
Barbers Hill	4,486,900	322,950
Big Creek	1,443,900	834,250
Clay Creek	841,100	5,600
Humble	3,043,200	683,150
Pierce Junction .	5,096,400	3,980,400
Raccoon Bend...	2,089,900	97,800
Refugio	1,992,950	56,600
South Liberty...	2.208.050	1,437,650
Sugar Land	3,950,550	389,750
Total 25,152,950		7,808,150

South Louisiana

Hackberry	673,500	.....

Those 10 fields, it is seen, had a combined increase of nearly 18,000,000 barrels in 1929 as compared with 1928, with the five fields, Barbers Hill, Sugar Land, Humble, Raccoon Bend, and Refugio, alone accounting for a net gain of over 14,000,000 barrels.

In contrast with the above fields, there were only five Gulf Coast areas which showed decseases of more than 500,000 barrels in 1929 production as compared with that of the previous year. They were as follows:

Texas Gulf Coast

Field	Bbls. Production 1929	1928
Blue Ridge	1,206,850	2,302,300
Hull	3,417,100	4,167,200
Spindle Top	9,923,100	14,021,300
West Columbia..	2,381,600	2,946,200
Total 16,928,650		23,437,000

South Louisiana

Sweet Lake	119,500	659,300

These five fields furnished a combined decrease of only about 7,000,000 barrels, with Spindle Top alone accounting for over one-half that amount. Subtracting this 7,000,000-barrel decrease from the 18,000,000-increase registered by the 10 fields mentioned above, there is left a net increase of 11,000,000 barrels. Minor decreases and increases in fields not included in the above two tables offset each other closely, and consequently a 10,000,000-barrel increase manifests itself in the Gulf Coast totals. Figures on production of all Gulf Coast fields, as well as on drilling activity in all of them, appear in the statistical section of this issue.

Barbers Hill

The greatest production increase registered by a single field in the Gulf Coast in 1929 was the gain of more than four million barrels at Barbers Hill. The development of an important field on that old dome has been an outstanding achievement made possible only through the advancements which have made drilling to great depths possible. For all but a few thousands of the 4½ million barrels of crude produced at Barbers Hill during 1929 came from depths greater than 5000 feet. This dome was one of the earliest to be drilled upon following the discovery of oil at Spindle Top, but many unsuccessful tests were put down before the first commercial production was found in 1918. Ever after that time, however, the field proved a disappointment. Producing almost altogether

Texas Gulf Coast Discovery Wells in 1929

Company, Well, Location and Field—	Producing Horizon	Total Depth	Date Comp.	Init. Prod.	Gravity oil
CHAMBERS COUNTY—					
Pure Oil Co., Mayes 2, E. H. R. Wallis Sur., Lost Lake	2748- 82	2782	8- 1-29	200	23
HARRIS COUNTY—					
Humble O. & R. Co., W. H. Irwin 2, W. B. Walker Sur., Mykawa	4150- 89	4189	8-19-29	¶50	
LIBERTY COUNTY—					
Harvey S. Smith, Inc., Moores Bluff Corp., 1, C. C. Brunson Sur., Esperson Dome	3304- 20	3320	8-15-29	800	24.5
Gulf Prod. Co., Boyt 1, H. & T. C. R. R. Sur. 22, Hankamer	2630- 74	2674	6- 6-29	700	20
Humble O. & R. Co., R. S. Sterling 6, Jas. McFadden Sur., Moss Bluff	5500-5666	5666	12-15-29	800	32
ORANGE COUNTY—					
The Texas Co., Kuhn 1, M. E. Hall Sur., 600 ft s and 400 ft w of ne c of H. J. Kuhn 1199-ac. tr., Port Neches	3140- 60	3160	5- 9-29	1900	21.5

Louisiana Gulf Coast Discovery Wells in 1929

Company, Well, Location and Field—	Producing Horizon	Total Depth	Date Comp.	Init. Prod.	Gravity oil
CAMERON PARISH—					
Shell Pet. Corp., Watkins 9, 999 ft w and 1243 ft s of nec Sec. 18-12s12w, Black Bayou	.....	981	4-29-9	30	19.5
IBERVILLE PARISH—					
Shell Pet. Corp., Wilbert 3, 1875 ft w and 2223 ft n of se c of Sec. 8-11s-12e, White Castle	5700-5836	5836	10-12-29	75	21
Standard Oil Co. of La., Wilbert 3, Sec. 74-9s-10e, Bayou Blue	1903-1925	1925	9-21-29	15	18.5
ST. LANDRY PARISH—					
The Texas Co., Botany Bay Lbr. Co. Fee 1, 8100 ft s and 3200 ft w of ne c T 6s, R 5e, Port Barre	3730- 63	3763	2-20-29	800	23.5
TERREBONNE PARISH—					
The Texas Co., Bay St. Elaine 1, Sec. 17-22s-18e, 875 ft s and 250 ft e of nw c of Sec., Bay St. Elaine	.....	680	5-25-29	¶20	
The Texas Co., Dog Lake Bayou A-1, Sec. 6-22s-16e, 1550 ft w and 300 ft s of ne c of Sec., Dog Lake Bayou	1056- 62	1062	6- 8-29	10	..
The Texas Co., Lake Barre A-2, Sec. 30-21s-20e, 1370 ft s and 1560 ft e of nw c of Sec. Lake Barre	3835- 49	3849	9-23-29	1680	27.5
The Texas Co., Lake Pelto B-1, Sec. 8-23s-18e, 2000 ft n and 1200 ft w of se c of Sec., Lake Pelto	1250-1388	1388	7-20-29	400	17

from Miocene sands less than 3800 feet deep, the field had yielded a total of only a little over a million barrels by the middle of 1928. In October, 1928, however, Mills Bennett Production Company started this former inconsequental dome on its climb into the position of a first class oil field by completing Smith 1 on the north end of the east flank as a 5000-barrel 26 gravity oil producer in an Oligocene sand at 5231-72 feet. Early in 1929 similar production from similar depth was discovered on the south flank of the dome by Yount-Lee Oil Company's Chambers County Agricultural Association 1.

During succeeding months virtually the entire area between those two deep wells was proved to be productive, so that by now deep sand production is established around approximately one-third of the dome along the east and south flanks. It was not until January 4, 1930, that Humphreys Corporation completed Kirby 8-A on the northwest flank of the dome, discovering a deeper and apparently more prolific sand, which presages for Barbers Hill a future even more interesting than the past year has been. That new well of the Humphreys Corporation is producing 34 gravity crude at 6397-6416 feet, and after flowing for three weeks at the rate of approximately 8000 barrels daily still showed no indication of declining production. Inasmuch as the land within considerable radius around that well is in large blocks, however, further development of the 6400-foot sand will be unhurried.

Big Creek

The increase of 600,000 barrels in Big Creek annual production in 1929 was accounted for through increased number of drilling operations. In 1929 there were 31 wells drilled or worked over, including 22 oil producer completions, with combined initial production of 41,075 barrels; while in 1928 there were only 23 completions, including 18 oil wells yielding 10,560 barrels new oil. Big Creek field is controlled largely by Gulf Production Company and The Texas Company, and they are doing limited amounts of drilling there.

Clay Creek

Early in January, 1929, Sun Oil Commany laid a four-inch line six miles from the Clay Creek field, northern Washington County, to the town of Gay Hill on the Santa Fe railroad, and began shipping crude oil by tank cars to the company's tanker loading terminal at Sun station on the Neches River. The first two producing wells of Clay Creek were completed in October and November, 1928, and during 1929 there was steady development of the field by Sun Oil Company, which discovered the interior salt dome around which the oil is accumulated, and which obtained a block of leases covering most of the dome. Clay Creek production is from broken sand of Cook Mountain age found around 1200 feet, it is around 25-26 gravity. About 25 tests were drilled at Clay Creek during the year, around two-thirds of them being oil or gas producers. Crude runs from the field, beginning in January amounted to a little over 700,000 barrels by the end of the year. The peak month of the year was April, when the production was 100,400 barrels, or over 3300 barrels daily on the average.

Humble

The development of prolific production around 5000 feet deep along the southeast and south flanks of the old Humble dome was an outstanding achievement in Gulf Coast activity during 1929. Although that field had produced more than 100 million barrels of oil from the discovery of production in 1905 through 1928, the daily yield was down to approximately 3000 barrels by the beginning of 1929, and it seemed that the last pages of Humble field history were in the making. But on January 4, 1929, South Texas Petroleum Company's Morris 1 came in flowing 5000 barrels of 44 gravity crude daily from a total depth of 5347 feet, discovering deep sands which have sent the production of the field upward to a present yield of about 16,000 barrels daily—with still only a relatively small area along the periphery of the dome explored from the standpoint of the prolific deep sands.

There is now renewed interest in the east and north flanks of the dome, with several tests drilling on each, and as this is being written Sun Oil Company is having difficulty controlling large gas pressure in Bender 3, a wildcat deep test on the west flank of the dome, in which screen was set at 3865 feet to test a favorable oil showing. That well is of particular interest, as there has been no production heretofore from deep sands on that side of the field. In fact there appears to be much interesting deep drilling in store for Humble dome along all sides dur-

(Continued on page 214)

GULF COAST PRODUCTION DURING PAST 10 YEARS

Year—	Louisiana	Texas	Total
1920	1,947,000	29,839,000	31,786,000
1921	1,930,000	37,656,000	39,586,000
1922	1,747,000	37,685,000	39,432,000
1923	2,450,000	33,628,000	36,078,000
1924	2,487,000	27,297,000	29,784,000
1925	3,563,000	30,989,000	34,552,000
1926	4,456,000	41,085,000	45,541,000
1927	5,409,000	49,122,000	54,531,000
1928	7,716,000	39,614,000	47,330,000
1929	7,665,000	49,739,000	57,405,000

Jefferson Unions

CORROSION
will never make a meal of these Unions

Iron-to-iron joints remove Jefferson Unions definitely from the bill-of-fare that sulphuric acid and other corrosive agents find so appetizing in highly corrosive districts.

For normal conditions, brass-to-iron joints are furnished. Both types furnished at the same price.

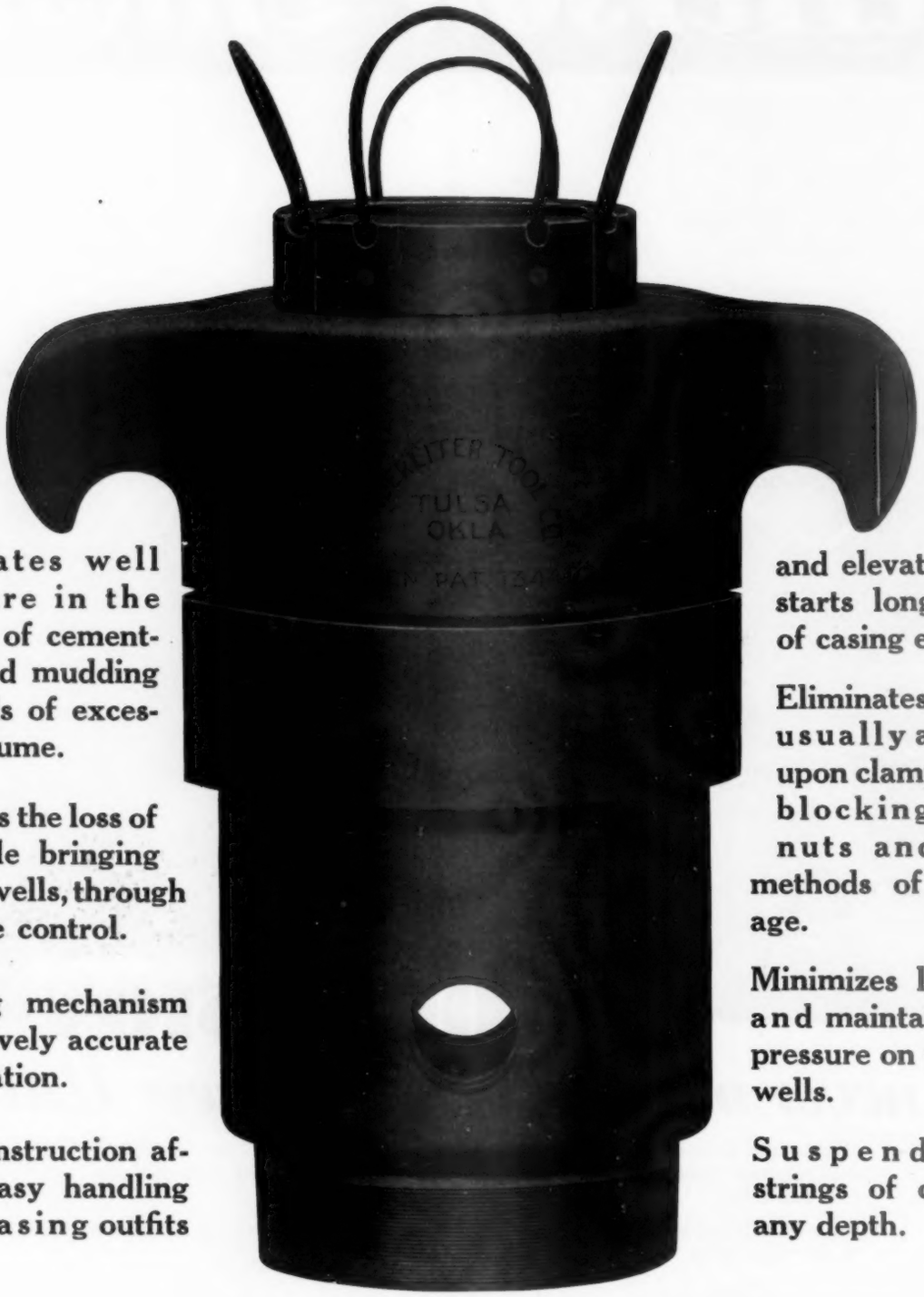
Distributed by

INTERNATIONAL SUPPLY CO., TULSA, OKLA.

Branches in Principal Fields

INTERNATIONAL
Supply Company

The Hinderliter Mildren Casing Support and Packing Head



Regulates well pressure in the process of cementing and mudding off wells of excessive volume.

Prevents the loss of oil while bringing in new wells, through pressure control.

Packing mechanism is positively accurate in operation.

Lug construction affords easy handling with casing outfits and elevator links; starts long strings of casing easily.

Eliminates dangers usually attendant upon clamps, wood blocking, bolts, nuts and other methods of anchorage.

Minimizes leakage and maintains well pressure on pumping wells.

Suspends long strings of casing at any depth.

HINDERLITER

HONEST TOOLS

ROTARY *STANDARD CABLE*

Geophysics Responsible *for* 14 New Fields *in* Gulf Coast

By JACK LOGAN
Staff Representative

IN another article in this issue it is pointed out that geophysical prospecting was responsible only in small degree for the fact that the Gulf Coast produced more oil during 1929 than in any previous year in its history. The sharp production increase was shown to be due mainly to development of new deep sands around old fields.

But production figures tell only part of the story in connection with activity in oil fields, and they constitute a particularly poor index to development of new producing areas in the Gulf Coast. For in the salt dome country practically all new fields now are being brought to light through geophysical methods; and passing largely into sole control of the companies discovering them, they are not being drilled hurriedly or extensively.

Thus the production figures give no hint of the startling fact that 14 new fields were opened in the Gulf Coast in 1929 through discovery of oil or gas production. Never before in the history of the Gulf Coast have so many fields been opened in a single year. By way of comparison it may be interesting to point out that only 14 producing fields were established in the Gulf Coast during the 17 years from the Spindle Top discovery in 1901 through 1917. Thus 1929 was a record year in the Gulf Coast from the standpoint of discovery of new fields as well as from that of production.

It is to be pointed out now, to the glory of the geophysicists and their science, that every one of the 14 new fields of 1929 was discovered through the use of geophysical instruments. Six of them are located in the Texas Gulf Coast, and eight are in Louisiana. Two in Texas were discovered by torsion balance, and the others were found by seismograph.

New Texas Domes

The six new fields in Texas are: Lost Lake, Chambers County; Mykawa, Harris County; Esperson Dome, Hankamer and Moss Bluff, all in Liberty County; and Port Neches, Orange County. Mykawa and Esperson Dome are the two which were discovered by torsion balance.

The eight new producing areas of Coastal Louisiana are: Black Bayou, Cameron Parish; White Castle and Bayou Blue, Iberville Parish; Port Barre, St. Landry Parish; and Bay St. Elaine, Dog Lake Bayou, Lake Barre and Lake Pelto, these four being situated near the coast in Terrebonne Parish.

The discovery wells of all these 14 new fields, and details concerning these wells are presented in a special accompanying table, and figures on the number of wells drilled in each during 1929 appear in the statistical department of this issue. A brief history of each of these 14 new fields will be given presently, but first something more will be said on the subject of geophysics as pertaining to activity in the Gulf Coast during 1929.

Aside from developing production on the 14 above named fields, Coastal operators were busy in continuing the work of finding additional salt domes and favorable-looking structures, using both seismograph and torsion balance, and the net result of that effort comprised the discovery of at least 40 new prospective oil fields—22 in Texas and 18 in Louisiana. Those 40 geophysical prospects are listed in an accompanying table, showing the location of each, the company and method by which it was discovered, and the development that has been done, if any.

Inasmuch as the Gulf Coast had been combed by geophysical crews for five years prior to the opening of 1929, the typical shallow salt domes which still remain undiscovered were becoming scarce, and consequently more and more interest came to be attached to the next-best prospects—deep domes, structures and anomalies whose importance will be revealed only through drilling. A relatively large number of the 40 geophysical prospects of 1929 will undoubtedly prove to be other than salt domes. For the most part they are still undrilled. Some of them may never be drilled. But a large percentage of them will be drilled.

During the past few weeks the first development has been started on several prospects, including Clodine and Eureka in Texas, and Cameron Meadows, South Welsh, Glenwild, Patterson, and Wax Lake in Louisiana. Several other prospects, among the 40 are scheduled to be drilled within the next few months. Several have already been tested by the drill, with both disappointing and encouraging results. Abbeville in Louisiana, and La-Belle, Richmond and Rosenberg in Texas are among the disappointments, although it is rumored that the latter is due to be given a second test soon. Danbury, Brazoria County, is the outstanding prospect of 1929 on which encouraging results have been obtained. The only test there, Shell Petroleum Corporation's Blakely-Winston 1 produced some 22.5 gravity oil by swabbing at 1567-77 feet, but is now being deepened. It is down around 3600 feet, and has had numerous good oil sands. If commercial production is not obtained in the deeper sands, the well will probably be completed as a pumping producer in the 1575-foot sand.

Older Discoveries Explored

While exploration for new fields was in progress and while the first production was being established in 14 of the older

1929 PRODUCTION IN ALL GULF COAST FIELDS FOUND BY GEOPHYSICAL METHODS

TEXAS

Fields Opened in 1929

Field—	Barrels
Esperson Dome	48,405
Hankamer	18,250
Lost Lake	99,000
Moss Bluff	...
Mykawa . . . . . Gas	...
Port Neches	243,450
Total	409,150

Fields Opened Before 1929

Allen Dome	5,450
Fannett	296,000
Moores Field	44,000
Sugar Land	3,950,550
Total	4,296,000
Total Texas	4,705,150

LOUISIANA

Fields Opened in 1929

Bayou Blue	10,900
Bay St. Elaine . . . . . Gas	...
Black Bayou	26,350
Dog Lake Bayou	3,800
Lake Barre	42,850
Lake Pelto	24,400
Port Barre	39,150
White Castle	18,450
Total	165,900

Fields Opened Before 1929

East Hackberry	1,171,050
Sorrento	104,000
Starks Dome	156,000
Total	1,431,050
Total Louisiana	1,596,950
Total Gulf Coast	6,302,100

Texas Gulf Coast Discovery Wells in 1929

Company, Well, Location and Field—	Producing Horizon	Total Depth	Date Comp.	Init. Prod.	Gravity oil
CHAMBERS COUNTY—					
Pure Oil Co., Mayes 2, E. H. R. Wallis Sur., Lost Lake	2748- 82	2782	8- 1-29	200	23
HARRIS COUNTY—					
Humble O. & R. Co., W. H. Irwin 2, W. B. Walker Sur., Mykawa	4150- 89	4189	8-19-29	¶50	
LIBERTY COUNTY—					
Harvey S. Smith, Inc., Moores Bluff Corp., 1, C. C. Brunson Sur., Esperson Dome	3304- 20	3320	8-15-29	800	24.5
Gulf Prod. Co., Boyt 1, H. & T. C. R. R. Sur. 22, Hankamer	2630- 74	2674	6- 6-29	700	20
Humble O. & R. Co., R. S. Sterling 6, Jas. McFadden Sur., Moss Bluff	5500-5666	5666	12-15-29	800	32
ORANGE COUNTY—					
The Texas Co., Kuhn 1, M. E. Hall Sur., 600 ft s and 400 ft w of ne c of H. J. Kuhn 1199-ac. tr., Port Neches	3140- 60	3160	5- 9-29	1900	21.5

Louisiana Gulf Coast Discovery Wells in 1929

Company, Well, Location and Field—	Producing Horizon	Total Depth	Date Comp.	Init. Prod.	Gravity oil
CAMERON PARISH—					
Shell Pet. Corp., Watkins 9, 999 ft w and 1243 ft s of nec Sec. 18-12s12w, Black Bayou	....-....	981	4-29-9	30	19.5
IBERVILLE PARISH—					
Shell Pet. Corp., Wilbert 3, 1875 ft w and 2223 ft n of se c of Sec. 8-11s-12e, White Castle	5700-5836	5836	10-12-29	75	21
Standard Oil Co. of La., Wilbert 3, Sec. 74-9s-10e, Bayou Blue	1903-1925	1925	9-21-29	15	18.5
ST. LANDRY PARISH—					
The Texas Co., Botany Bay Lbr. Co. Fee 1, 8100 ft s and 3200 ft w of ne c T 6s, R 5e, Port Barre	3730- 63	3763	2-20-29	800	23.5
TERREBONNE PARISH—					
The Texas Co., Bay St. Elaine 1, Sec. 17-22s-18e, 875 ft s and 250 ft e of nw c of Sec., Bay St. Elaine	....-....	680	5-25-29	¶20	
The Texas Co., Dog Lake Bayou A-1, Sec. 6-22s-16e, 1550 ft w and 300 ft s of ne c of Sec., Dog Lake Bayou	1056- 62	1062	6- 8-29	10	..
The Texas Co., Lake Barre A-2, Sec. 30-21s-20e, 1370 ft s and 1560 ft e of nw c of Sec. Lake Barre	3835- 49	3849	9-23-29	1680	27.5
The Texas Co., Lake Pelto B-1, Sec. 8-23s-18e, 2000 ft n and 1200 ft w of se c of Sec., Lake Pelto	1250-1388	1388	7-20-29	400	17

from Miocene sands less than 3800 feet deep, the field had yielded a total of only a little over a million barrels by the middle of 1928. In October, 1928, however, Mills Bennett Production Company started this former inconsequental dome on its climb into the position of a first class oil field by completing Smith 1 on the north end of the east flank as a 5000-barrel 26 gravity oil producer in an Oligocene sand at 5231-72 feet. Early in 1929 similar production from similar depth was discovered on the south flank of the dome by Yount-Lee Oil Company's Chambers County Agricultural Association 1.

During succeeding months virtually the entire area between those two deep wells was proved to be productive, so that by now deep sand production is established around approximately one-third of the dome along the east and south flanks. It was not until January 4, 1930, that Humphreys Corporation completed Kirby 8-A on the northwest flank of the dome, discovering a deeper and apparently more prolific sand, which presages for Barbers Hill a future even more interesting than the past year has been. That new well of the Humphreys Corporation is producing 34 gravity crude at 6397-6416 feet, and after flowing for three weeks at the rate of approximately 8000 barrels daily still showed no indication of declining production. Inasmuch as the land within considerable radius around that well is in large blocks, however, further development of the 6400-foot sand will be unhurried.

Big Creek

The increase of 600,000 barrels in Big Creek annual production in 1929 was accounted for through increased number of drilling operations. In 1929 there were 31 wells drilled or worked over, including 22 oil producer completions, with combined initial production of 41,075 barrels; while in 1928 there were only 23 completions, including 18 oil wells yielding 10,560 barrels new oil. Big Creek field is controlled largely by Gulf Production Company and The Texas Company, and they are doing limited amounts of drilling there.

Clay Creek

Early in January, 1929, Sun Oil Company laid a four-inch line six miles from the Clay Creek field, northern Washington County, to the town of Gay Hill on the Santa Fe railroad, and began shipping crude oil by tank cars to the company's tanker loading terminal at Sun station on the Neches River. The first two producing wells of Clay Creek were completed in October and November, 1928, and during 1929 there was steady development of the field by Sun Oil Company, which discovered the interior salt dome around which the oil is accumulated, and which obtained a block of leases covering most of the dome. Clay Creek production is from broken sand of Cook Mountain age found around 1200 feet, it is around 25-26 gravity. About 25 tests were drilled at Clay Creek during the year, around two-thirds of them being oil or gas producers. Crude runs from the field, beginning in January amounted to a little over 700,000 barrels by the end of the year. The peak month of the year was April, when the production was 100,400 barrels, or over 3300 barrels daily on the average.

Humble

The development of prolific production around 5000 feet deep along the southeast and south flanks of the old Humble dome was an outstanding achievement in Gulf Coast activity during 1929. Although that field had produced more than 100 million barrels of oil from the discovery of production in 1905 through 1928, the daily yield was down to approximately 3000 barrels by the beginning of 1929, and it seemed that the last pages of Humble field history were in the making. But on January 4, 1929, South Texas Petroleum Company's Morris 1 came in flowing 5000 barrels of 44 gravity crude daily from a total depth of 5347 feet, discovering deep sands which have sent the production of the field upward to a present yield of about 16,000 barrels daily—with still only a relatively small area along the periphery of the dome explored from the standpoint of the prolific deep sands.

There is now renewed interest in the east and north flanks of the dome, with several tests drilling on each, and as this is being written Sun Oil Company is having difficulty controlling large gas pressure in Bender 3, a wildcat deep test on the west flank of the dome, in which screen was set at 3865 feet to test a favorable oil showing. That well is of particular interest, as there has been no production heretofore from deep sands on that side of the field. In fact there appears to be much interesting deep drilling in store for Humble dome along all sides dur-

(Continued on page 214)

GULF COAST PRODUCTION DURING PAST 10 YEARS

Year—	Louisiana	Texas	Total
1920	1,947,000	29,839,000	31,786,000
1921	1,930,000	37,656,000	39,586,000
1922	1,747,000	37,685,000	39,432,000
1923	2,450.000	33.628,000	36,078,000
1924	2,487.000	27,297,000	29,784,000
1925	3,563,000	30,989,000	34,552,000
1926	4,456,000	41,085,000	45,541,000
1927	5,409,000	49,122,000	54,531,000
1928	7,716.000	39,614,000	47,330,000
1929	7,665,000	49,739,000	57,405,000

Geophysics Responsible *for* 14 New Fields *in* Gulf Coast

By JACK LOGAN
Staff Representative

IN another article in this issue it is pointed out that geophysical prospecting was responsible only in small degree for the fact that the Gulf Coast produced more oil during 1929 than in any previous year in its history. The sharp production increase was shown to be due mainly to development of new deep sands around old fields.

But production figures tell only part of the story in connection with activity in oil fields, and they constitute a particularly poor index to development of new producing areas in the Gulf Coast. For in the salt dome country practically all new fields now are being brought to light through geophysical methods; and passing largely into sole control of the companies discovering them, they are not being drilled hurriedly or extensively.

Thus the production figures give no hint of the startling fact that 14 new fields were opened in the Gulf Coast in 1929 through discovery of oil or gas production. Never before in the history of the Gulf Coast have so many fields been opened in a single year. By way of comparison it may be interesting to point out that only 14 producing fields were established in the Gulf Coast during the 17 years from the Spindle Top discovery in 1901 through 1917. Thus 1929 was a record year in the Gulf Coast from the standpoint of discovery of new fields as well as from that of production.

It is to be pointed out now, to the glory of the geophysicists and their science, that every one of the 14 new fields of 1929 was discovered through the use of geophysical instruments. Six of them are located in the Texas Gulf Coast, and eight are in Louisiana. Two in Texas were discovered by torsion balance, and the others were found by seismograph.

New Texas Domes

The six new fields in Texas are: Lost Lake, Chambers County; Mykawa, Harris County; Esperson Dome, Hankamer and Moss Bluff, all in Liberty County; and Port Neches, Orange County. Mykawa and Esperson Dome are the two which were discovered by torsion balance.

The eight new producing areas of Coastal Louisiana are: Black Bayou, Cameron Parish; White Castle and Bayou Blue, Iberville Parish; Port Barre, St. Landry Parish; and Bay St. Elaine, Dog Lake Bayou, Lake Barre and Lake Pelto, these four being situated near the coast in Terrebonne Parish.

The discovery wells of all these 14 new fields, and details concerning these wells are presented in a special accompanying table, and figures on the number of wells drilled in each during 1929 appear in the statistical department of this issue. A brief history of each of these 14 new fields will be given presently, but first something more will be said on the subject of geophysics as pertaining to activity in the Gulf Coast during 1929.

Aside from developing production on the 14 above named fields, Coastal operators were busy in continuing the work of finding additional salt domes and favorable-looking structures, using both seismograph and torsion balance, and the net result of that effort comprised the discovery of at least 40 new prospective oil fields—22 in Texas and 18 in Louisiana. Those 40 geophysical prospects are listed in an accompanying table, showing the location of each, the company and method by which it was discovered, and the development that has been done, if any.

Inasmuch as the Gulf Coast had been combed by geophysical crews for five years prior to the opening of 1929, the typical shallow salt domes which still remain undiscovered were becoming scarce, and consequently more and more interest came to be attached to the next-best prospects—deep domes, structures and anomalies whose importance will be revealed only through drilling. A relatively large number of the 40 geophysical prospects of 1929 will undoubtedly prove to be other than salt domes. For the most part they are still undrilled. Some of them may never be drilled. But a large percentage of them will be drilled.

During the past few weeks the first development has been started on several prospects, including Clodine and Eureka in Texas, and Cameron Meadows, South Welsh, Glenwild, Patterson, and Wax Lake in Louisiana. Several other prospects, among the 40 are scheduled to be drilled within the next few months. Several have already been tested by the drill, with both disappointing and encouraging results. Abbeville in Louisiana, and La-Belle, Richmond and Rosenberg in Texas are among the disappointments, although it is rumored that the latter is due to be given a second test soon. Danbury, Brazoria County, is the outstanding prospect of 1929 on which encouraging results have been obtained. The only test there, Shell Petroleum Corporation's Blakely-Winston 1 produced some 22.5 gravity oil by swabbing at 1567-77 feet, but is now being deepened. It is down around 3600 feet, and has had numerous good oil sands. If commercial production is not obtained in the deeper sands, the well will probably be completed as a pumping producer in the 1575-foot sand.

Older Discoveries Explored

While exploration for new fields was in progress and while the first production was being established in 14 of the older

1929 PRODUCTION IN ALL GULF COAST FIELDS FOUND BY GEOPHYSICAL METHODS

TEXAS

Fields Opened in 1929

Field—	Barrels
Esperson Dome	48,405
Hankamer	18,250
Lost Lake	99,000
Moss Bluff	...
Mykawa .....Gas	...
Port Neches	243,450
Total	409,150

Fields Opened Before 1929

Allen Dome	5,450
Fannett	296,000
Moores Field	44,000
Sugar Land	3,950,550
Total	4,296,000
Total Texas	4,705,150

LOUISIANA

Fields Opened in 1929

Bayou Blue	10,900
Bay St. Elaine .....Gas	...
Black Bayou	26,350
Dog Lake Bayou	3,800
Lake Barre	42,850
Lake Pelto	24,400
Port Barre	39,150
White Castle	18,450
Total	165,900

Fields Opened Before 1929

East Hackberry	1,171,050
Sorrento	104,000
Starks Dome	156,000
Total	1,431,050
Total Louisiana	1,596,950
Total Gulf Coast	6,302,100

geophysically discovered fields in 1929, drilling was also carried on in numerous others of the older geophysical prospects, continuing production on those which were already productive and continuing or beginning the search for production on others.

No new developments of importance occurred at Allen Dome, Moores Field, Sorrento, or Starks Dome. Fannett, however, became established as an important field through completion of several large producers below 5000 feet. In 1929 it produced 296,000 barrels, as compared with 4000 barrels in 1928. East Hackberry in 1929 continued as one of the better fields of South Louisiana, producing over one million barrels, as in 1928, although only 11 producers were completed during the year. Sugar Land definitely established itself during 1929 as the most important field yet developed from a geophysically discovered prospect. It was discovered in 1928, but had not yet produced one-half million barrels by the close of that year. By the end of 1929 it had produced nearly 4½ million barrels, and at that time only 50 wells had been completed in the field, including 48 oil producers, one gas well and one failure. Judging by present indications, Sugar Land will ultimately rank as one of the most prolific of all Gulf Coast fields. It was discovered through torsion balance, and is being developed solely by Humble Oil & Refining Company.

Older geophysical prospects of South Louisiana which were drilled without developing production in 1929 included Bayou des Glaise, Caillou Island, Darrow, Four Isle Bayou, Garden Island Bay, Loreauville, Roanoke, South Calcasieu Lake, Thibodaux (Chocahoula), and Vermilion Bay. Although no production was established through that drilling, the presence of a salt dome was proved in various cases through encountering salt or cap rock. Union Sulphur Company's Schwing 3, located in Section 86-8s-8e, Iberville Parish, proved the dome at Bayou des Glaise by going into salt around 3700 feet. The first and only test at Caillou Island (Timbalier Bay) dome, The Texas Company's No. 1, located in Section 19-23s-20e, Terrebonne Parish, was abandoned in anhydrite at 3000 feet. The lone test of Darrow, Ascension Parish, found neither production nor dome formation. It was Gulf Refining Company's Belle Kelene 1, located in Section 27-10s-2e. Salt was encountered at Four Isle Bayou, Terrebonne Parish, at 1400 feet in The Texas Company's 1-B, located in Section 23-21s-16e, and at Garden Island, Plaquemines Parish, at 2000 feet in The Texas Company's No. 2, located in Section 107-23s-32e.

The older geophysical prospects of the Texas Gulf Coast which were drilled upon in 1929, without establishing production included Clemens Dome, San Felipe, and Long Point. Each of those had previously been definitely established as salt domes.

Further information will now be given concerning the 14 new fields which were opened during the past year in the Gulf Coast, beginning with the six in Coastal Texas.

Lost Lake

Lost Lake is situated in the northwestern portion of Chambers County, about five miles east of Barbers Hill. Indications of a salt dome were found there by Pure Oil Company through seismograph in 1927. That company has done all drilling there. The first five wells drilled were scattered over the top of the dome, which is relatively deep. The shallowest depth at which cap rock was encountered was 3623 feet. Salt has not yet been drilled into, although one well, Lost River 1, penetrated the cap rock from 3951 to 4697 feet. In the accompanying table of discovery wells Mayes 2 is listed as the discovery well, as it was the first oil well of the field, having been completed for 200 barrels 24 gravity crude daily at 2748-82 feet on August 1, 1929. However, Mayes 1 had been previously completed as a 40-million foot gas well with 880 pounds rock pressure at 2071 feet about March 15, 1929. There are now four producing oil wells at Lost Lake, all being around 2700-2800 feet deep, and by the end of 1929 the field had produced 99,000 barrels. Four wells are now drilling there.

Mykawa

Mykawa is in the southern part of Harris County about seven miles south of Houston. Indications of a deep salt dome were found there in 1928 by North American Exploration, making a survey for H. C. Cockburn, and leases blocked by Cockburn were turned to Humble Oil & Refining Company. That company's third test W. H. Irvin 2 in the W. B. Walker Survey came in August 19, 1929, as a 50-million foot gas well with pressure of about 1500 pounds, when two joints of screen had been set in a sand at 4150-89 feet. This well was connected with the gas line of the Houston Pipe Line Company and flowed for some time into that line. But early in December, 1929, the gas pressure had decreased considerably, and the well began producing around 20 barrels of high gravity oil daily. Humble Oil & Refining Company about November 1 completed Siadous 1 as the second gas well of the field at 3453 feet, but is now drilling that well deeper. Two other tests are also being drilled at Mykawa now, one by Watts Drilling Company and the other by Higgins Oil & Fuel Company. In December, 1929, Humble Oil & Refining Company also encountered gas in Woodburn 2, August Whitlock Survey, Harris County, the second test of a 1928 torsion balance prospect two miles south of Genoa closely resembling Mykawa prospect. That well, however, is now being deepened with the hope of finding oil. If Mykawa and Genoa are domes, they are deep ones. Dome formation has not yet been found at either prospect.

Esperson Dome

Esperson Dome is in the southwest corner of Liberty County, seven miles south of North Dayton and the same distance north of Barbers Hill, in the C. W. Fisher, D. L. Kokernot, C. C. Brunson and possibly adjoining surveys. It was found by Union Exploration Company, using torsion balance in 1928. The third completed test of the area, Harvey S. Smith's Moores Bluff Corporation 1, in C. C. Brunson Survey, was the discovery well, coming in at 3304-20 feet for 800 barrels daily of 24.5 gravity pipe line oil on August 15, 1929. Since then production has been extended about one mile to the north and west, and new sands have proved productive of oil in commercial quantity at 2270-76 feet, 1817-32 feet, and 2340 feet, and a promising gas sand has been encountered at 5750 feet. All these sands were proved up through completion of five producing wells. Yount-Lee Oil Company has taken over the discovery lease of 34 acres, and all other development has been by Cranfill-Reynolds Company, which absorbed Union Exploration Company. Four wells are now drilling at Esperson Dome. Although the field is commonly called "Esperson Dome," cap rock or salt has not yet been encountered. The field produced 48,460 barrels of oil in 1929.

Hankamer

Hankamer field is immediately north of the south line of Liberty County, 12 miles due south of Hull. Two wells have been completed there and both are producers, although shut in for storage. This prospect was discovered by Gulf Production Company using seismograph in 1928, and that company is sole operator there. Its first test, Boyt 1, located in H. & T. C. R. R. Survey 22, came in June 6, 1929, as the discovery well, flowing 700 barrels 20 gravity pipe line oil daily when two joints of screen had been set at 2674 feet. Two wells are now drilling at Hankamer. Although production was shut in largely, the field produced 18,225 barrels in 1929. Hankamer field is said to be of the non-salt dome type, like Orange and Goose Creek.

Moss Bluff

Moss Bluff is among the older geophysically discovered domes, having been found in 1926 through seismograph by Gulf Production Company. It is five miles due west of Hankamer, and six miles southeast of South Liberty. Various companies have acreage there, with Gulf Production Company and Humble Oil & Refining Company holding most promising leases. First commercial production was obtained when Humble Oil & Refining Company completed Sterling 6 December 15, 1929, for 800 barrels 32 gravity oil daily at 5666 feet. That well is on the

(Continued on page 212)

World's Production of Crude Petroleum Since 1857, by Years and Countries, in Barrels of 42 Gallons

Year	Rumania	United States	Italy	Canada	Russia	Poland	Japan and Formosa	Germany	India	Dutch East Indies	Peru	Mexico	Argentina	Trinidad	Egypt	Other Countries	Total	Year	Pct. Prod. by U. S.
1857	1,977	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,977	1857	.00
1858	3,560	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,560	1858	.00
1859	4,349	2,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,349	1859	31.5
1860	8,542	500,000	36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	508,578	1860	98.3
1861	17,379	2,113,609	29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,130,917	1861	99.1
1862	23,198	3,056,690	20	11,775	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,091,692	1862	98.8
1863	27,943	2,611,309	58	82,814	40,816	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,762,940	1863	94.5
1864	33,013	2,116,109	72	90,000	64,686	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,303,780	1864	90.5
1865	39,017	2,497,700	2,265	110,000	66,542	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,715,524	1865	91.9
1866	42,534	3,597,700	992	175,000	83,052	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,899,278	1866	92.3
1867	50,838	3,347,300	791	190,000	119,917	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,708,846	1867	90.2
1868	55,369	3,646,117	367	200,000	88,327	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,990,180	1868	91.2
1869	58,533	4,215,000	144	220,000	202,308	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,695,985	1869	89.9
1870	83,765	5,260,745	86	250,000	204,618	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,799,214	1870	90.7
1871	90,030	5,205,234	273	269,397	165,129	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,730,063	1871	90.8
1872	91,251	6,293,194	131	308,100	184,391	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,877,267	1872	91.5
1873	104,036	9,893,786	467	365,052	474,379	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,837,720	1873	91.3
1874	103,177	10,926,945	604	168,807	583,751	149,837	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,933,121	1874	91.5
1875	108,569	8,787,514	813	220,000	697,364	158,522	4,566	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,977,348	1875	88.1
1876	111,314	9,132,669	2,891	312,000	1,320,528	164,157	7,708	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,051,267	1876	82.6
1877	108,569	13,350,363	2,934	312,000	1,800,720	169,792	9,560	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,753,938	1877	85.4
1878	109,300	15,396,898	4,329	312,000	2,400,960	175,420	17,884	.....	.....	.....	.....	.....	.....	.....	.....	.....	18,416,761	1878	84.7
1879	110,007	19,914,146	2,891	575,000	2,761,104	214,800	23,457	.....	.....	.....	.....	.....	.....	.....	.....	.....	23,601,405	1879	84.3
1880	114,321	26,286,123	2,035	350,000	3,001,200	229,120	25,492	9,310	.....	.....	.....	.....	.....	.....	.....	.....	30,017,606	1880	87.6
1881	121,511	27,661,238	1,237	275,000	3,601,441	286,400	16,751	29,219	.....	.....	.....	.....	.....	.....	.....	.....	31,992,797	1881	86.4
1882	136,610	30,349,897	1,316	275,000	4,537,815	330,076	15,549	58,025	.....	.....	.....	.....	.....	.....	.....	.....	35,704,288	1882	85.0
1883	139,486	23,449,633	1,618	250,000	6,002,401	365,160	20,473	26,708	.....	.....	.....	.....	.....	.....	.....	.....	30,255,479	1883	77.5
1884	210,667	24,218,438	2,855	250,000	10,804,577	408,120	27,923	46,161	.....	.....	.....	.....	.....	.....	.....	.....	35,968,741	1884	67.3
1885	193,411	21,858,785	1,941	250,000	13,924,596	465,400	29,237	41,360	.....	.....	.....	.....	.....	.....	.....	.....	36,764,730	1885	59.4
1886	168,606	28,064,841	1,575	584,061	18,006,407	305,884	37,916	73,864	.....	.....	.....	.....	.....	.....	.....	.....	47,243,154	1886	59.4
1887	181,907	28,283,483	1,496	525,655	18,367,781	343,832	28,645	74,284	.....	.....	.....	.....	.....	.....	.....	.....	47,807,083	1887	59.2
1888	218,576	27,612,025	1,251	695,203	23,048,787	466,537	37,436	84,782	.....	.....	.....	.....	.....	.....	.....	.....	52,164,597	1888	59.9
1889	297,666	35,163,513	1,273	704,690	24,609,407	515,268	52,811	68,217	91,250	.....	.....	.....	.....	.....	.....	.....	61,507,095	1889	57.2
1890	383,227	45,823,572	2,998	795,030	28,691,218	659,012	51,420	108,296	118,065	.....	.....	.....	.....	.....	.....	.....	76,632,838	1890	59.9
1891	488,201	54,292,655	8,305	755,298	31,573,181	630,730	52,917	108,929	150,131	.....	.....	.....	.....	.....	.....	.....	91,100,347	1891	59.6
1892	593,175	50,514,657	18,321	779,753	35,774,504	646,220	68,901	101,404	242,284	.....	.....	.....	.....	.....	.....	.....	88,739,219	1892	56.9
1893	535,655	48,431,066	19,069	798,406	40,456,519	692,669	106,384	99,390	298,969	600,000	.....	.....	.....	.....	.....	.....	92,038,127	1893	52.6
1894	507,255	49,344,516	20,552	829,104	36,373,428	919,146	171,744	122,564	327,218	688,170	.....	.....	.....	.....	.....	.....	89,335,697	1894	55.2
1895	575,200	52,892,276	25,843	726,138	46,140,174	1,452,999	141,310	121,277	371,536	1,215,757	.....	.....	.....	.....	.....	.....	103,662,510	1895	51.0
1896	543,348	60,960,361	18,149	726,822	47,220,633	2,443,080	197,082	145,061	429,979	1,427,132	47,536	.....	.....	.....	.....	.....	114,159,183	1896	53.4
1897	570,886	60,475,516	13,892	709,857	54,398,568	2,226,368	218,559	165,745	545,704	2,551,649	70,831	.....	.....	.....	.....	.....	121,948,575	1897	49.5
1898	776,238	55,364,233	14,489	758,391	61,609,357	2,376,108	265,389	183,427	542,110	2,964,035	70,905	.....	.....	.....	.....	.....	124,924,682	1898	44.4
1899	1,425,777	57,070,850	16,121	808,570	65,954,968	2,313,047	536,079	192,232	910,971	1,795,961	89,166	.....	.....	.....	.....	.....	131,143,742	1899	43.5
1900	1,628,535	63,620,529	12,102	913,498	75,779,417	2,346,505	866,814	358,297	1,078,264	2,253,355	274,800	.....	.....	.....	.....	.....	149,132,116	1900	42.5
1901	1,678,326	69,389,194	16,150	756,679	85,168,556	3,251,544	1,110,790	313,630	1,430,716	4,013,710	274,800	10,345	.....	.....	.....	20,000	167,434,434	1901	41.4
1902	2,059,935	88,766,916	18,933	530,624	80,540,044	4,142,159	1,193,038	353,674	1,617,363	2,430,465	286,725	40,200	.....	.....	.....	26,000	182,006,076	1902	48.8
1903	2,763,117	100,461,337	17,876	486,637	75,591,256	5,234,473	1,209,371	445,818	2,510,259	5,770,056	278,092	75,375	.....	.....	.....	36,000	194,879,669	1903	51.5
1904	3,599,026	117,080,960	25,476	552,575	78,536,655	5,947,383	1,419,473	637,431	3,385,468	6,508,485	345,834	125,625	.....	.....	.....	40,000	218,204,391	1904	53.7
1905	4,420,987	134,717,580	43,027	634,095	54,960,270	5,765,317	1,472,804	560,963	4,137,098	7,849,896	447,880	251,250	.....	.....	.....	30,000	215,292,167	1905	62.6
1906	6,378,184	126,493,936	53,572	569,753	58,897,311	5,467,967	1,710,768	578,610	4,015,803	8,180,657	536,294	502,500	.....	.....	.....	30,000	213,415,360	1906	59.2
1907	8,118,207	166,095,335	59,875	788,872	61,850,731	8,455,841	2,070,145	1,009,278	5,047,038	10,283,357	1,011,180	3,932,900	101	.....	.....	30,000	264,245,419	1907	63.2
1908	8,252,157	178,527,355	50,966	527,987	62,186,447	12,612,295	1,889,563	1,018,837	6,676,517	11,041,852	1,316,118	2,713,500	18,431	57,143	.....	30,000	285,552,746	1908	62.5
1909	9,327,278	183,170,874	42,388	420,755	65,970,350	14,932,799	1,930,661	1,032,522	6,137,990	11,030,620	1,330,105	3,634,680	20,753	142,857	.....	20,000	298,616,405	1909	61.3
1910	9,723,806	209,557,248	50,839	315,895	70,336,574	12,673,688	1,930,661	1,032,522	6,137,990	11,030,620	1,368,274	12,552,798	13,119	285,307	9,150	20,000	327,937,629	1910	64.0
1911	11,107,450	220,449,391	74,709	291,096	66,183,691	10,519,270	1,658,903	1,017,045	6,451,203	12,172,949	1,751,143	16,558,215	47,007	436,805	205,905	20,000	344,174,355	1911	64.0
1912	12,976,232	222,935,044	53,278	243,336	68,019,208	8,535,174	1,671,405	1,031,050	7,116,672	10,845,624	2,133,261	25,696,291	130,618	503,616	94,635	20,000	352,446,508	1912	63.2
1913	13,554,768	248,446,230	47,198	228,080	62,834,356	7,818,130	1,942,009	995,764	7,930,149	11,172,294	1,917,802	26,235,403	275,500	643,533	727,038	20,000	383,547,399	1913	64.7
1914	12,826,579	265,762,535	39,849	214,805	67,020,522	5,033,350	2,738,378	995,764	7,409,792	11,834,802	2,487,251	32,910,508	516,120	750,000	262,208	10,000	403,745,342	1914	65.8
1915	12,029,913	281,104,104	43,898	215,464	68,548,062	4,158,899	3,118,464	995,764	8,202,674	12,386,800	2,550,645	40,545,712	706,920	928,581	411,000	25,000	427,740,129	1915	65.7
1916	10,298,208	300,767,158	50,585	198,123	72,801,110	6,461,706	2,997,178	995,764	8,491,137	13,174,399	2,533,417	55,292,770	1,144,737	1,599,435	1,008,750	25,000	461,493,226	1916	65.2
1917	2,681,870	335,315,601	50,334	205,332	69,000,000	5,965,447	2,898,654	995,764	8,078,843	12,928,955	2,536,102	63,828,327	1,321,315	2,082,068	2,079,750	7,004,973	506,702,902	1917	66.2
1918	8,730,235	355,927,716	35,953	304,741	40,456,182	5,591,620	2,449,069	711,260	8,000,000	13,284,936	2,616,000	87,073,000	1,183,000	1,841,000	1,501,000	7,300,080	514,729,354	1918	69.1
1919	6,614,000	377,719,000	35,000	241,000	25,495,000	6,054,000	2,175,000	234,000	8,735,000	15,428,000	2,816,649	163,540,000	1,665,989	2,083,027	1,042,000	750,000	544,885,000	1919	62.0
1920	7,435,344	443,402,000	34,180	196,937	25,429,600	5,606,116	2,139,777	212,046	7,500,000	17,529,210	3,699,280	193,397,587	1,747,410	2,354,000	1,255,000	14,221,125	694,854,000	1920	63.8
1921	8,368,000	427,183,000	34,400	190,338	29,150,000	5,167,000	2,447,000	200,000	8,000,000	16,958,105	5,314,000	182,278,000	3,018,000	2,445,000	1,188,000	19,913,880	765,065,000	1921	61.7
1922	9,843,000	557,531,000	31,000	179,000	32,966,000	.....	2,042,000	319,000	7,700,000	16,720,000	5,699,000	149,858,000	3,400,000	3,051,000	1,054,000	33,235,000	854,809,000	1922	65.2
1923	10,867,000	732,407,000	34,000	170,000	39,156,000	5,373,000	1,789,000	312,000	8,320,000	19,868,000	6,000,000	144,000,000	4,000,000	3,333,330	1,000,000	37,855,000	1,019,213,000	1923	71.3
1924	13,000,000	710,463,600	.....	170,000	44,000,000	5,750,000	1,666,660	33,330	8,000,000	21,000,000	9,164,000	115,515,000	5,818,000	4,654,000	1,226,000	44,045,000	1,009,461,920	1924	70.3
1925	16,646,000	763,743,000	45,000	318,000	52,448,000	5,960,000	2,000,000	411,000	8,000,000	21,422,000	11,000,000	90,700,000	6,500,000	5,500,000	1,250,000	60,196,000	1,067,566,000	1925	71.5
1926	23,500,000	766,504,000	45,000	350,000	62,000,000	5,600,000	1,820,000	600,000	8,000,000	21,700,000	9,800,000	64,121,000	8,700,000	5,200,000	1,220,000	83,863,000	1,096,690,000	1926	69.9
1927	26,100,000	901,129,000	60,000	500,000	72,400,000	5,800,000	1,700,000	700,000	8,200,000	21,400,000	11,970,000	50,100,000	9,100,000	7,750,000	1,840,000	121,515,000	1,249,395,000	1927	71.5
1928	30,600,000	902,000,000	43,000	618,000	87,400,000	5,530,000	1,800,000	683,000	8,300,000	28,500,000	13,357,517	44,000,000	12,000,000	8,592,809	2,500,000	176,212,000*	1,322,896,000	1928	68.2
1929*	32,000,000	1,000,917,100	40,000	820,000	101,938,370	5,600,000	1,925,000	692,000	9,000,000	30,000,000						7,814,000†	1,473,650,427	1929	67.9

Year	Venezuela	Persia	Colombia	Ecuador
1927	63,134,000	39,688,000	15,002,000	537,000
1928	106,000,000	42,080,000	19,900,000	1,015,505
1929*	135,675,000	45,000,000	20,384,548	1,394,083

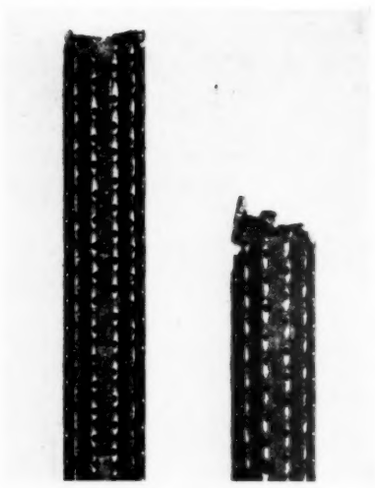
*All figures preliminary estimates based upon reliable information obtained from foreign government sources.
†Includes Czecho Slovakia, 153,000; Sakhalin, 610,000; France, 575,000; Iraq, 1,000,000; Sarawak, 5,450,000.

Pittsburgh Testing

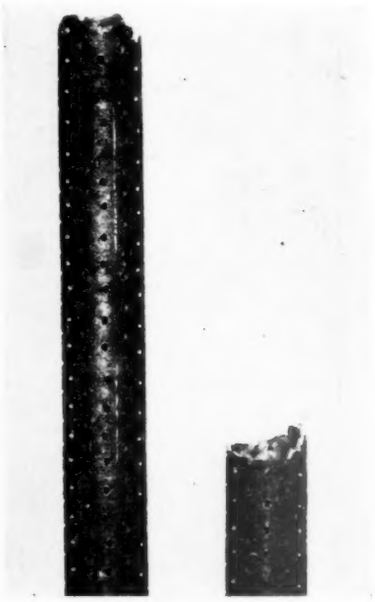
Makes Elaborate Tests

THE LAYNE MILLED

This is the screen that has proven the sensational development of the industry during the past year.



Milled Groove
Tensile Test



Drilled Pipe
Tensile Test

TENSILE STRENGTH

Tests made on 8 ft. 6 in. section of our Regular Drilled and Milled Groove pipe (4¾ inches in diameter, 8 feet 6 inches long, and weighing 18 pounds per foot) without the Keystone Wire wrapping, which further strengthens. Results:

Specimen—	Load at Yield Point, pounds	Ultimate Load pounds	Avg. Wall Thickness inches	Avg. O.D. inches
Drilled pipe	186,800	310,750	.368	5.0014
Milled and drilled pipe	205,000	307,600	.382	5.005

SCREEN SPECIALISTS

Laboratory

of the Strength and Safety of

GROOVE SCREEN

End Compression or Collapsing Test
Made on 6-inch lengths cut from both the drilled and the milled and drilled pipe. Results:

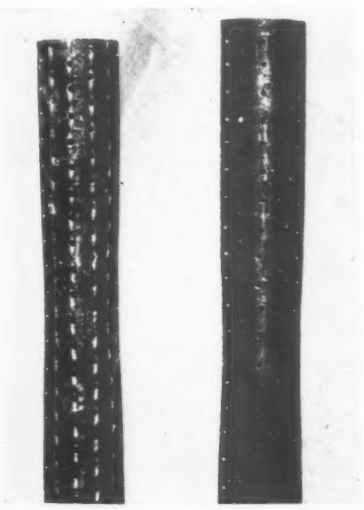
Specimen—	Load at Yield Point, pounds	Ultimate Load pounds
Drilled pipe	140,950	407,200
Milled and drilled pipe	144,300	389,800

Side Compression or Collapsing Test
Made on full length (8 ft. 6 in.) of pipe with 6-inch saddle, which permitted load only over 6 inches of pipe. Results:

Specimen—	Load at Failure pounds
Drilled pipe	113,760
Milled and drilled pipe	108,000

Milled Groove
End Compression Test

Drilled Pipe
End Compression Test



Milled Groove Drilled Pipe
Side Compression Test

"From the results of these tests, it is evident that the 'milling' operation has not seriously affected the strength of the pipe."

—*Statement by* J. W. REIFSNYDER,
Engineer of Tests.

These tests prove conclusively to those who do not already know by actual use that the improved Layne Milled Groove Screen has the necessary strength.

All who have used it know already that it does increase production.

By the above test, you can safely set this screen under more than 8,000 feet of drill pipe—safely.

The Layne & Bowler Co.

The Layne New York Co.
30 Church St., New York

The Layne & Bowler Corp.
Los Angeles, Cal.

Vickers, Limited
London, England

FOR MORE THAN A QUARTER CENTURY

Petroleum Marketed in the United States, 1859-1929, in Barrels of 42 Gallons

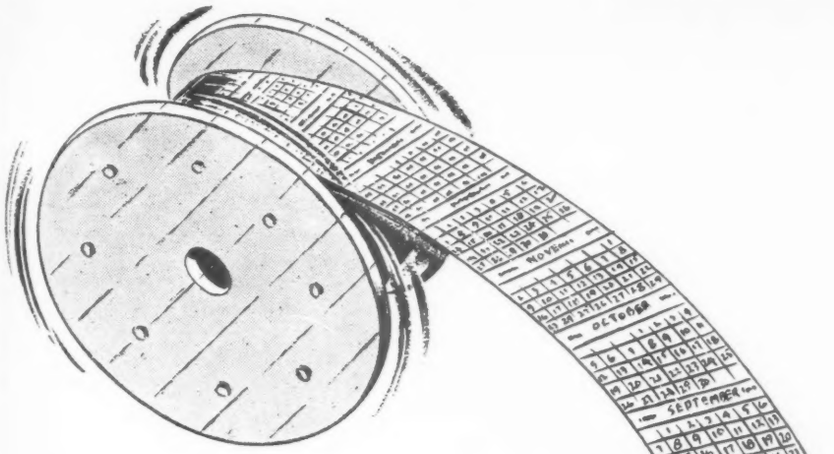
Figures taken from Petroleum Statistics compiled by the Department of Commerce

	Pennsylvania and New York	Ohio	West Virginia	California	Kentucky and Tennessee	Colorado	Indiana	Illinois	Kansas	Texas	Missouri	Oklahoma	Wyoming Including Montana and New Mexico	Louisiana	United States	Total Value	Year
1859	2,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,000	$ 32,000	1859
1860	500,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	500,000	4,800,000	1860
1861	2,113,609	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,113,609	1,035,668	1861
1862	3,056,690	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,056,690	3,209,525	1862
1863	2,611,309	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,611,309	8,225,663	1863
1864	2,116,109	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,116,109	20,896,576	1864
1865	2,497,700	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,497,700	16,459,853	1865
1866	3,597,700	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,597,700	30,455,398	1866
1867	3,347,300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,347,300	8,066,993	1867
1868	3,646,117	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,646,117	13,217,174	1868
1869	4,215,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,215,000	23,730,450	1869
1870	5,260,745	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,260,745	20,503,754	1870
1871	5,205,234	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,205,234	22,591,180	1871
1872	6,293,194	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,293,194	21,440,503	1872
1873	9,893,786	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,983,786	18,100,464	1873
1874	10,926,945	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10,926,945	12,647,527	1874
1875	8,787,514	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,787,514	7,368,133	1875
1876	8,968,906	31,763	120,000	12,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,132,669	22,982,822	1876
1877	13,135,475	29,888	172,000	13,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13,350,363	31,788,566	1877
1878	15,163,462	38,179	180,000	15,227	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,396,868	18,044,620	1878
1879	19,685,176	29,112	180,000	19,858	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19,914,146	17,210,708	1879
1880	26,027,631	38,940	179,000	40,552	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26,286,123	24,600,638	1880
1881	27,376,509	33,867	151,000	99,862	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27,661,238	25,448,339	1881
1882	30,053,500	39,761	128,000	128,636	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30,349,897	23,631,165	1882
1883	23,128,389	47,632	126,000	142,857	4,755	.....	.....	.....	.....	.....	.....	.....	.....	.....	23,449,663	25,790,252	1883
1884	23,772,209	90,081	90,000	262,000	4,148	.....	.....	.....	.....	.....	.....	.....	.....	.....	24,218,438	20,595,966	1884
1885	20,776,041	661,580	91,000	325,000	5,164	.....	.....	.....	.....	.....	.....	.....	.....	.....	21,858,785	19,198,243	1885
1886	25,798,000	1,782,970	102,000	377,145	4,726	.....	.....	.....	.....	.....	.....	.....	.....	.....	28,064,841	19,996,313	1886
1887	22,356,193	5,022,632	145,000	678,572	4,791	76,295	.....	.....	.....	.....	.....	.....	.....	.....	28,283,483	18,877,094	1887
1888	16,488,668	10,010,868	119,448	690,333	5,096	297,612	.....	.....	.....	.....	.....	.....	.....	.....	27,612,025	17,947,620	1888
1889	21,487,435	12,471,466	544,113	303,220	5,400	316,476	33,375	1,460	500	48	20	.....	.....	.....	35,163,513	26,963,340	1889
1890	28,458,208	16,124,656	492,578	307,360	6,000	368,842	63,496	900	1,200	54	278	.....	.....	.....	45,823,572	35,365,105	1890
1891	33,009,236	17,740,301	2,406,218	323,600	9,000	655,482	136,634	675	1,400	54	25	30	.....	.....	54,292,655	30,529,553	1891
1892	28,422,377	16,362,921	3,810,086	385,049	6,500	824,000	136,634	521	5,000	45	10	80	.....	.....	50,514,657	25,906,463	1892
1893	20,314,513	16,249,769	8,445,412	470,179	3,000	594,390	2,335,293	409	18,000	50	50	10	.....	.....	48,431,066	28,950,326	1893
1894	19,019,990	16,792,154	8,577,624	705,969	1,500	515,746	3,688,666	300	40,000	60	8	130	2,369	.....	49,344,516	35,522,095	1894
1895	19,144,390	19,545,233	8,120,125	1,208,482	1,500	438,232	4,386,132	200	44,430	50	10	37	3,455	.....	52,892,276	57,632,296	1895
1896	20,584,421	23,941,169	10,019,770	1,252,777	1,680	361,450	4,680,732	250	113,571	1,450	43	170	2,878	.....	60,960,361	58,518,709	1896
1897	19,262,066	21,560,515	13,090,045	1,903,411	322	384,934	4,122,356	500	81,098	65,975	19	625	3,650	.....	60,475,516	40,874,072	1897
1898	15,948,464	18,738,708	13,615,101	2,257,207	5,568	444,383	3,730,907	360	71,980	546,070	10	.....	5,475	.....	55,364,233	44,193,359	1898
1899	14,374,512	21,142,108	13,910,630	2,642,095	18,280	390,278	3,848,182	360	69,700	669,013	132	.....	5,560	.....	57,070,850	64,603,904	1899
1900	14,559,127	22,362,739	16,195,675	4,324,484	62,259	317,385	4,874,392	200	74,714	836,039	[1]1,692	6,472	5,450	.....	63,620,529	75,989,313	1900
1901	13,831,996	21,648,083	14,177,126	8,786,330	137,259	460,520	5,757,086	250	179,151	4,393,658	[2]2,335	10,000	5,400	.....	69,389,194	66,417,335	1901
1902	13,183,610	21,014,231	13,513,345	13,984,268	185,331	396,901	7,480,896	200	331,749	18,083,658	[3]757	37,100	6,253	548,617	88,766,916	71,178,910	1902
1903	12,518,134	20,480,286	12,899,395	24,382,372	554,286	483,925	9,186,411	.....	932,214	17,955,572	[3]3,000	138,911	8,960	917,771	100,461,337	94,694,050	1903
1904	12,239,026	18,876,631	12,644,686	29,649,434	998,284	501,763	11,339,124	.....	4,250,779	22,241,413	[2]2,572	1,366,748	11,542	2,958,958	117,080,960	101,175,455	1904
1905	11,554,777	16,346,660	11,578,110	33,427,473	1,217,337	376,238	10,967,247	181,084	[2]12,013,495	28,136,189	[3]3,100	[3]	8,454	8,910,416	134,717,580	34,157,309	1905
1906	11,500,410	14,787,763	10,120,935	33,098,598	1,213,548	327,582	7,673,477	4,397,050	[2]21,718,648	12,567,897	[3]3,500	[3]	[3]7,000	9,077,528	126,493,936	92,444,735	1906
1907	11,211,606	12,207,448	9,095,296	39,748,375	820,844	331,851	5,128,037	24,281,973	2,409,521	12,322,696	[3]4,000	43,524,128	[3]9,339	5,000,221	166,095,335	120,106,749	1907
1908	10,584,453	10,858,797	9,523,176	44,854,737	[3]727,767	379,653	3,283,629	33,686,238	1,801,781	11,206,464	[3]15,246	45,798,765	[3]17,775	5,788,874	178,527,355	129,079,184	1908
1909	10,434,300	10,632,793	10,745,092	55,471,601	[3]639,016	310,861	2,296,086	30,898,339	1,263,764	9,534,467	[3]5,750	47,859,218	[3]20,056	3,059,531	183,170,874	128,328,487	1909
1910	9,848,500	9,916,370	11,753,071	73,010,560	[3]468,774	239,794	2,159,725	33,143,362	1,128,668	8,899,266	[3]3,615	52,028,718	[3]115,430	6,841,395	209,557,248	127,899,688	1910
1911	9,200,673	8,817,112	9,795,464	81,134,391	[3]472,458	226,926	1,695,289	31,317,038	1,278,819	9,626,474	[3]7,995	56,069,637	[3]186,695	10,720,420	220,449,391	134,044,752	1911
1912	8,712,076	[3]8,969,007	12,128,962	[3]87,272,593	[3]848,368	206,052	970,009	28,601,308	1,592,796	11,735,052	(3)	51,427,071	1,572,306	9,263,439	222,935,044	164,213,247	1912
1913	8,865,493	8,781,468	11,567,299	97,788,525	[3]524,568	188,568	956,095	23,893,899	2,375,029	15,009,478	[3]10,843	63,579,384	2,406,522	12,498,828	248,446,230	237,121,388	1913
1914	9,109,309	8,536,352	9,680,033	99,775,327	[3]502,441	222,773	1,335,456	21,919,749	3,103,585	20,068,184	[3]27,792	73,631,724	3,560,375	14,309,435	265,762,535	214,125,215	1914
1915	8,726,483	7,825,326	9,264,798	86,591,535	[3]437,274	208,475	875,758	19,041,695	2,823,487	24,942,701	[3]14,265	97,915,243	4,245,525	18,191,539	281,104,104	179,462,890	1915
1916	8,466,481	7,744,511	8,731,184	90,951,936	1,203,246	197,235	769,036	17,714,235	[3]8,738,077	27,644,603	.....	107,071,715	6,234,137	15,248,138	300,767,158	330,899,868	1916
1917	8,612,885	7,750,540	8,379,285	93,877,549	3,100,356	121,231	759,432	15,776,860	36,536,125	32,413,287	.....	107,507,471	8,978,680	11,392,201	[4]335,315,601	522,635,213	1917
1918	8,216,655	7,285,005	7,866,628	97,531,997	4,376,342	143,286	877,558	13,365,974	45,451,017	38,750,031	.....	103,347,070	12,596,287	16,042,600	[4]355,927,716	703,943,961	1918
1919	9,141,936	8,243,592	9,032,688	101,221,784	5,027,904	241,680	929,780	12,436,000	34,769,100	85,312,000	.....	81,127,900	13,342,320	16,250,000	377,719,000	867,753,379	1919
1920	8,360,400	7,412,000	8,173,050	105,668,000	8,692,600	110,000	932,000	10,772,000	38,500,000	96,000,000	.....	105,725,000	17,407,000	35,649,000	443,402,000	1,360,000,000	1920
1921	8,414,000	7,333,000	8,003,000	114,709,000	8,963,000	108,200	1,163,000	10,044,000	36,232,000	103,322,000	.....	113,978,000	20,656,800	26,523,000	469,639,000	814,745,000	1921
1922	8,505,000	6,775,000	7,015,000	138,907,000	9,603,000	96,500	1,089,000	9,409,000	31,891,000	117,106,545	.....	147,414,000	29,177,265	33,889,480	556,207,725	895,111,000	1922
1923	8,590,000	7,123,050	6,452,000	258,387,119	8,110,140	95,500	1,049,000	8,724,000	29,406,925	125,991,628	.....	155,573,392	48,238,170	22,812,685	725,057,305	978,430,000	1923
1924	8,860,000	6,798,000	5,899,000	230,366,303	7,405,300	413,300	938,000	8,082,000	28,351,001	133,613,985	.....	170,189,463	42,480,700	20,595,136	710,463,430	1,024,683,000	1924
1925	9,596,000	7,226,000	5,859,000	231,768,982	6,835,700	1,123,000	830,000	7,260,000	34,497,756	150,010,406	.....	167,951,575	36,030,875	21,414,878	759,131,872	1,284,960,000	1925
1926	10,898,000	7,322,000	5,975,000	224,117,000	6,324,000	2,717,000	793,000	7,766,000	41,427,000	163,933,000	.....	179,272,000	33,830,000	22,803,000	766,504,000	1,147,760,000	1926
1927	11,768,000	7,593,000	6,023,000	231,196,000	6,779,000	2,831,000	852,000	6,994,000	41,069,000	217,389,000	.....	277,775,000	27,591,000	22,818,000	901,129,000	1,172,830,000	1927
1928	12,559,000	7,015,000	5,661,000	231,811,000	7,405,000	2,774,000	1,052,000	6,462,000	38,596,000	257,320,000	.....	249,857,000	26,419,000	21,847,000	901,474,000	1,054,880,000	1928
1929a	44,741,050b	(b)	(b)	291,359,250	(b)	(c)	(b)	(b)	40,942,250	298,848,150	.....	251,205,200	26,978,450c	21,127,150	1,000,917,100	.....	1929
Total	929,936,100	551,811,978	361,577,398	3,260,738,014	93,348,832	21,829,550	115,733,364	386,174,380	644,404,330	1,973,074,669	.....	2,771,379,987	362,186,153	426,199,210	12,330,216,141	.....	Total

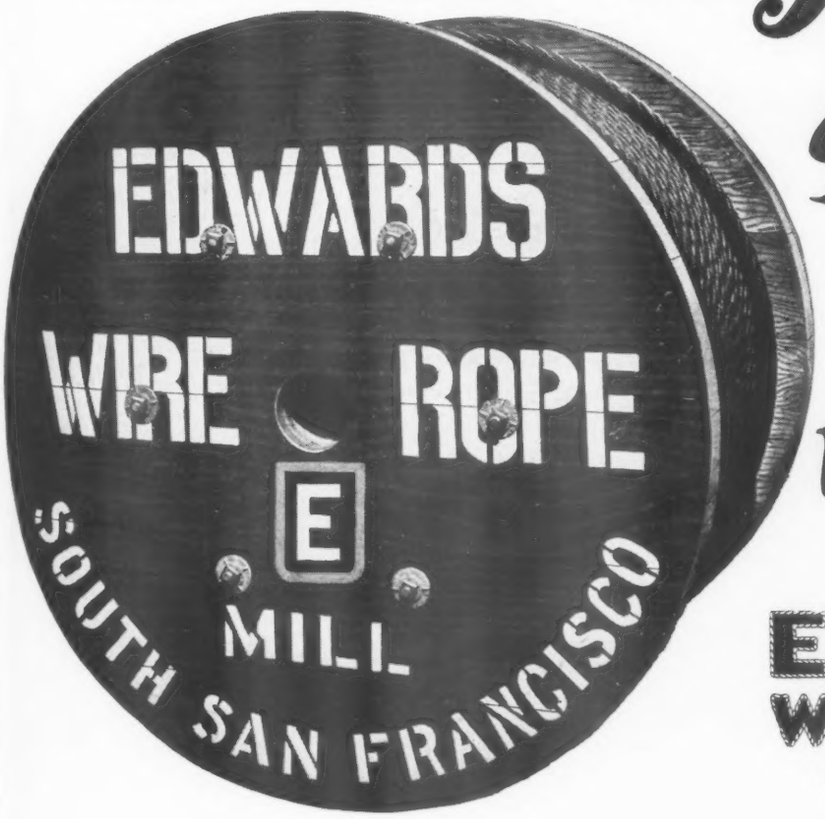
Arkansas	1921	10,190,000
Arkansas	1922	15,869,635
Arkansas	1923	44,488,746
Arkansas	1924	46,480,542
Arkansas	1925	78,717,700
Arkansas	1926	59,229,000
Arkansas	1927	40,005,000
Arkansas	1928	32,096,000
Arkansas	1929	25,720,600
Total		352,971,223

[1]Includes Alaska, Michigan and Missouri production, estimated at 10,300 barrels in 1917 and 7,943 barrels in 1918. [2]Includes production of Michigan. [3]Includes production of Oklahoma. [3]Included with Kansas. [4]Estimated. [5]Includes production of Utah. [6]No. production in Tennessee recorded. [7]Includes small production in Alaska. [8]No production in Missouri; Michigan included in Ohio. [9]Includes production of Alaska, Michigan and New Mexico. [10]Includes production of Alaska and Michigan.

(a) Preliminary figures, subject to change. (b) Production all Eastern States included under Penna. and N. Y. (c) All Rocky Mtn. production included under Wyoming.



Reel Off a crackerjack year with



EDWARDS WIRE ROPE

E. H. EDWARDS COMPANY
Standard Oil Building
San Francisco

Mid-Continent Distributors
HINDERLITER TOOL COMPANY
TULSA, OKLAHOMA

Petroleum Produced in the United States, 1929, by States

(Thousands of Barrels—42 gallons)

Figures Taken From "Petroleum Statistics" Department of Commerce, U. S. Bureau of Mines

State—	January	February	March	April	May	June	July	August	September	October	November	December *	The Year
Arkansas	2,324	2,145	2,341	2,233	2,230	2,044	2,098	2,056	1,953	1,971	1,806	1,920	25,121
California	23,386	22,301	24,325	23,295	24,053	24,625	26,797	27,233	26,104	26,900	21,318	21,634	291,971
Colorado	214	185	205	187	221	215	215	189	182	168	151	165	2,297
Illinois	506	453	602	456	550	515	559	571	531	565	506	510	6,324
Indiana	87	85	82	82	84	78	77	80	75	82	83	80	975
Southwestern	83	81	76	76	78	71	71	74	70	77	78	76	911
Northeastern	4	4	6	6	6	7	6	6	5	5	5	4	64
Kansas	2,929	2,836	3,086	3,379	3,793	3,791	4,329	4,186	3,959	3,677	3,433	3,452	42,850
Kentucky	586	511	559	583	635	546	710	678	722	819	725	770	7,835
Louisiana	1,776	1,514	1,666	1,624	1,632	1,590	1,656	1,668	1,780	1,893	1,656	1,886	20,341
Gulf Coast	723	541	584	578	567	557	567	594	636	694	592	705	7,338
Rest of State	1,053	973	1,082	1,046	1,065	1,033	1,089	1,074	1,144	1,199	1,064	1,181	13,003
Michigan	159	130	145	158	231	478	623	650	510	505	393	410	4,392
Montana	306	275	282	260	272	262	264	265	255	262	243	250	3,196
New Mexico	76	67	91	78	96	86	107	145	216	241	238	247	1,688
New York	255	240	267	277	289	282	301	285	282	289	281	275	3,323
Ohio	532	482	547	560	579	573	647	577	541	596	532	521	6,687
Central and East	428	387	425	441	451	428	488	429	421	467	422	410	5,197
Northwestern	104	95	122	119	128	145	159	148	120	129	110	111	1,490
Oklahoma	22,884	20,070	21,133	20,586	21,743	20,688	22,682	22,632	21,372	20,669	19,120	20,093	253,672
Osage County	1,399	1,240	1,319	1,277	1,296	1,192	1,283	1,255	1,178	1,214	1,015	1,155	14,823
Rest of State	21,485	18,830	19,814	19,309	20,447	19,496	21,399	21,377	20,194	19,455	18,105	18,938	238,849
Pennsylvania	850	806	916	939	1,018	954	1,037	1,042	959	1,121	1,053	1,020	11,715
Tennessee	2	2	1,000	3,000	2	1	2	2	1	2	1	1	20
Texas	23,100	21,763	24,239	23,420	24,928	24,619	27,059	27,787	25,707	26,174	24,591	25,641	299,028
Gulf Coast	3,530	3,299	3,766	3,957	4,045	3,769	3,939	4,186	4,023	4,515	4,632	5,400	49,060
Rest of State	19,570	18,464	20,473	19,463	20,883	20,850	23,121	23,601	21,684	21,659	19,959	20,241	249,968
West Virginia	462	404	467	466	491	453	483	478	454	512	455	459	5,584
Wyoming	1,545	1,424	1,561	1,524	1,568	1,603	1,681	1,764	1,666	1,667	1,576	1,650	19,229
Salt Creek	916	903	957	945	928	913	938	1,022	972	992	930	975	11,391
Rest of State	629	521	604	579	640	690	743	742	694	675	646	675	7,838
United States	81,979	75,693	82,515	80,110	84,415	83,403	91,327	92,288	87,269	88,104	78,161	81,322	1,006,586

Petroleum Produced in the United States 1929—Classified by Gravity (Approximate)

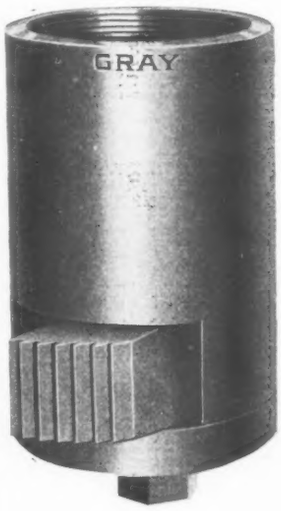
(Thousands of Barrels—42 gallons)

Figures Taken from "Petroleum Statistics" Department of Commerce, U. S. Bureau of Mines.

Light Crude 24 Gr. (0.910) and lighter	74,812	66,193	73,713	71,799	76,009	75,390	82,878	83,407	78,509	79,183	69,409	71,710	904,562
Heavy Crude (Heavier than 24 A.P.I. Gr.)	7,167	6,500	8,802	8,311	8,406	8,013	8,449	8,881	8,760	8,921	8,752	9,612	102,024
Total	81,979	75,693	82,515	80,110	84,415	83,403	91,327	92,288	87,269	88,104	78,161	81,322	1,006,586

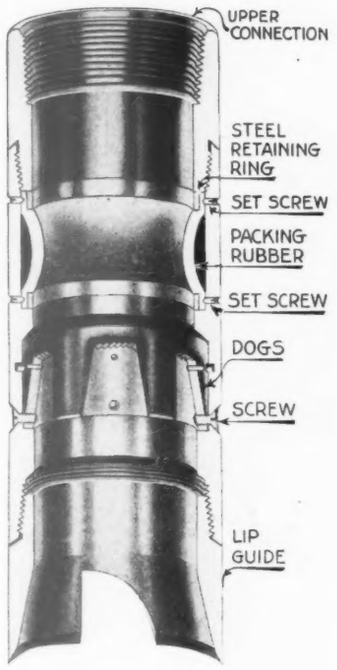
*December production estimated by The Oil Weekly.

IN YOUR FIELD



Your Fishing Problems are the Ones That Concern You Most—

Satisfactory results can only come to you through a combination of the right tools for the job, this tool available for immediate service, and a thorough knowledge of its possibilities as well as limitations.



In supplying all fields with highly profitable and efficient fishing equipment, we draw upon a vast amount of dependable data, based upon our experience as the first shop to specialize in rotary fishing. Our sales force, composed of practical field men, in addition to giving *dependable advice on fishing*, will recommend to you from our complete line of rotary fishing tools the right tool for the job. Thousands of successful completions enable us to supply you with actual examples on almost any fishing operation.

Our fishing tool file will be sent to you *upon request*—Giving you dependable facts, sizes and illustrations, which may help you toward the more economical performance of your problems.

Please request copy of our fishing tool file.

GRAY
TOOL COMPANY
HOUSTON – TEXAS

*December production estimated by The Oil Weekly.

California's Petroleum Production

FROM THE BEGINNING OF THE INDUSTRY TO DECEMBER 31, 1929, BY FIELDS

Compiled from data furnished by federal and state bureaus, the American Petroleum Institute, and the Independent Oil Producers Agency

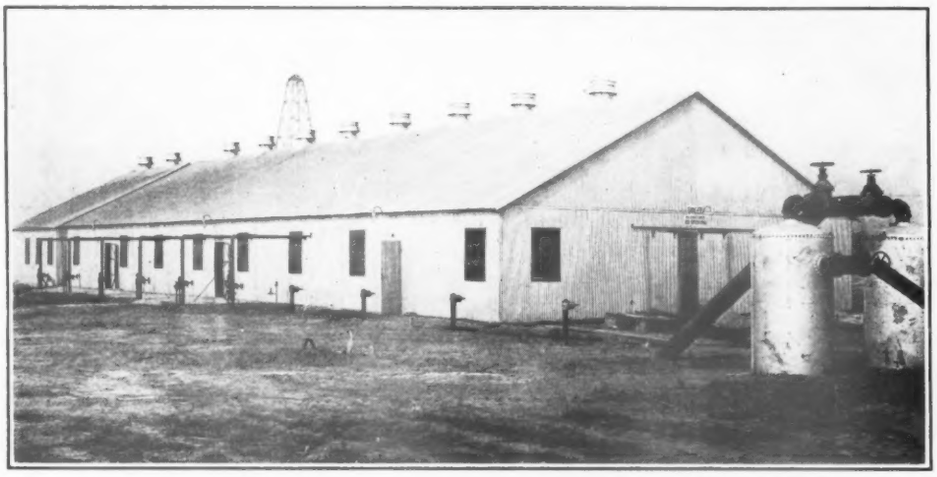
(Barrels of 42 U. S. Gallons)

Year	Kern River	McKittrick	Midway	Sunset	Elk Hills	Coalinga	Lost Hills-Belridge	Santa Maria-Lompoc	Coyote	Montebello	Richfield	Whittier	Santa Fe Springs
Prior	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1876	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1877	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1878	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1879	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1880	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1881	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1882	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1883	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1884	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1885	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1886	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1887	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1888	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1889	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1891	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1892	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1893	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1894	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1895	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1896	.....	.....	.....	.....	.....	14,119	.....	.....	.....	.....	.....	.....	.....
1897	.....	.....	.....	.....	.....	70,140	.....	.....	.....	.....	.....	.....	.....
1898	.....	10,000	.....	.....	.....	154,000	.....	.....	.....	.....	.....	.....	.....
1899	.....	15,000	.....	.....	.....	439,372	.....	.....	.....	.....	.....	.....	.....
1900	826,775	80,000	.....	12,500	.....	547,960	.....	.....	.....	.....	.....	.....	.....
1901	3,278,840	430,450	4,235	188,600	.....	525,433	.....	.....	.....	.....	.....	.....	.....
1902	8,988,046	619,296	3,048	167,558	.....	571,233	.....	94,188	.....	.....	.....	.....	.....
1903	16,342,099	1,353,206	27,305	352,565	.....	2,138,058	.....	204,890	.....	.....	.....	.....	.....
1904	17,226,240	1,856,225	910	390,425	.....	5,097,853	.....	700,450	.....	.....	.....	.....	.....
1905	15,253,845	1,373,030	18,530	419,212	.....	8,882,125	.....	3,402,800	.....	.....	.....	.....	.....
1906	12,825,166	680,756	11,800	307,550	.....	8,401,105	.....	4,799,411	.....	.....	.....	.....	.....
1907	12,346,014	2,415,840	149,944	704,805	.....	8,996,268	.....	8,249,236	.....	.....	.....	.....	.....
1908	13,803,579	3,076,300	434,578	1,463,510	.....	10,725,795	.....	8,699,350	.....	.....	.....	.....	.....
1909	14,508,242	5,807,360	2,234,455	1,999,701	.....	15,406,619	.....	8,017,455	.....	.....	.....	.....	.....
1910	14,776,435	5,471,613	11,174,207	9,218,904	.....	18,646,570	4,900	7,607,830	.....	.....	.....	.....	.....
1911	14,078,890	5,477,532	21,584,602	5,559,069	.....	18,311,251	168,410	7,465,074	.....	.....	.....	.....	.....
1912	12,446,445	5,094,465	25,948,980	5,590,824	.....	19,546,122	2,680,961	6,801,966	1,359,303	.....	.....	747,439	.....
1913	9,980,940	4,496,842	33,040,129	5,984,651	.....	18,604,626	5,274,553	5,817,711	3,777,359	.....	.....	690,133	.....
1914	7,030,545	3,820,857	37,479,228	12,546,615	.....	15,925,887	4,830,921	4,303,080	6,998,659	.....	.....	636,789	.....
1915	8,034,974	3,552,801	33,311,486	6,006,607	.....	13,548,159	4,318,550	4,536,840	6,610,508	.....	.....	758,163	.....
1916	8,402,525	3,230,644	32,156,818	6,768,658	.....	14,381,493	4,852,431	4,422,410	8,588,699	.....	.....	1,014,667	.....
1917	8,495,610	3,252,544	29,487,812	7,072,333	.....	15,938,543	6,295,329	5,798,070	11,458,471	789,635	.....	1,156,752	.....
1918	7,921,515	3,050,627	27,439,993	6,608,940	.....	16,283,066	5,420,079	7,143,750	12,514,598	6,839,267	.....	1,046,467	.....
1919	7,563,025	2,810,848	26,133,048	5,589,885	281,019	16,385,610	4,554,821	6,030,910	10,240,359	12,100,784	965,408	1,001,048	.....
1920	7,456,515	2,607,240	25,217,420	5,423,781	7,275,809	15,464,198	4,139,767	5,928,060	8,732,435	11,124,585	2,565,346	842,184	.....
1921	6,715,680	2,056,101	24,172,350	4,613,965	18,085,425	12,340,637	3,261,281	5,563,324	7,419,050	9,065,723	8,206,962	735,376	208,216
1922	7,317,288	2,417,434	24,152,026	5,542,816	11,891,030	9,159,368	2,814,824	3,797,903	7,000,373	6,692,024	8,314,528	717,729	11,032,955
1923	6,816,134	2,191,702	27,803,281		8,174,371	5,210,839	1,843,483	3,003,672	2,447,825	4,075,669	6,121,335	645,219	79,781,275
1924	6,765,977	2,092,940	37,559,084		13,675,686	10,084,725	1,527,878	2,864,792	5,716,479	6,214,762	4,443,548	767,805	26,434,535
1925	5,951,217	2,096,736	37,391,003		11,833,366	7,811,886	1,736,960	2,652,427	7,188,569	6,895,949	4,258,973	741,090	19,090,766
1926	4,358,396	1,961,028	33,968,755		12,292,754	7,295,807	1,693,666	1,852,356	6,030,619	6,515,493	5,574,244	746,125	17,446,709
1927	6,098,585	1,855,605	31,670,705		10,073,075	7,154,600	1,515,300	1,999,050	5,146,865	5,498,255	7,884,045	660,505	15,153,575
1928	5,071,285	**	27,314,095		8,107,200	4,655,285	1,526,490	***	4,902,000	4,369,640	6,798,675	**	16,093,930
1929	.....	.....	25,627,050		.....	.....	.....	.....	.....	.....	.....	.....	76,611,200
Totals	270,680,827	75,055,022	668,050,350		101,699,726	308,718,742	58,460,604	121,757,005	116,232,171	80,181,786	55,133,064	12,907,491	261,853,159

Figures for MIDWAY and SUNSET fields are Combined after 1922

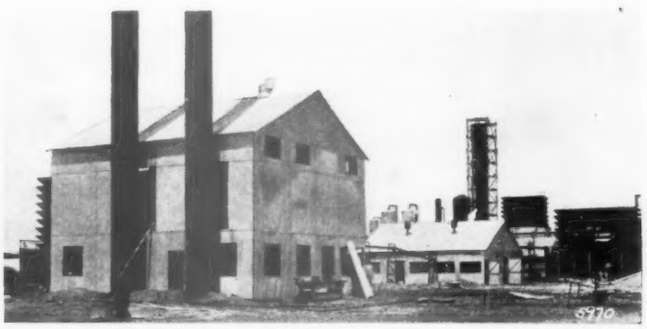
(Continued on page 156)

Sturdy and Durable Industrial Steel Buildings...



BRADEN *Sectional* Steel Buildings are manufactured of materials selected for durability. The construction is such that they are unusually sturdy without rendering single sections unduly heavy. Since these "ready-made" buildings are obtained at minimum cost in time and money, they offer utmost value. . . . Write, wire or phone for information regarding BRADEN *Sectional* Steel Buildings in sizes and types for any industrial purpose.

BRADEN STEEL CORPORATION TULSA OKLA TRADE MARK



BRADEN

SECTIONAL STEEL BUILDINGS

California's Petroleum Production

(Continued from page 154)

Year	Huntington Beach	Fullerton	Long Beach	Summerland	Newhall and Ventura Co.	Los Angeles and Salt Lake	Torrance	Wheeler Ridge	Dominguez	Rosecrans	Inglewood	Seal Beach	Miscellaneous	Total
Prior	.....	.....	.....	.....	175,000	.....	.....	.....	.....	.....	.....	.....	.....	175,000
1876	.....	.....	.....	.....	12,000	.....	.....	.....	.....	.....	.....	.....	.....	12,000
1877	.....	.....	.....	.....	13,000	.....	.....	.....	.....	.....	.....	.....	.....	13,000
1878	.....	.....	.....	.....	15,227	.....	.....	.....	.....	.....	.....	.....	.....	15,227
1879	.....	.....	.....	.....	19,858	.....	.....	.....	.....	.....	.....	.....	.....	19,858
1880	.....	.....	.....	.....	40,552	.....	.....	.....	.....	.....	.....	.....	.....	40,552
1881	.....	.....	.....	.....	99,862	.....	.....	.....	.....	.....	.....	.....	.....	99,862
1882	.....	.....	.....	.....	128,636	.....	.....	.....	.....	.....	.....	.....	.....	128,636
1883	.....	.....	.....	.....	142,857	.....	.....	.....	.....	.....	.....	.....	.....	142,857
1884	.....	.....	.....	.....	262,000	.....	.....	.....	.....	.....	.....	.....	.....	262,000
1885	.....	Early	.....	.....	325,000	.....	.....	.....	.....	.....	.....	.....	.....	325,000
1886	.....	production	.....	.....	377,145	.....	.....	.....	.....	.....	.....	.....	.....	377,145
1887	.....	included	.....	.....	678,572	.....	.....	.....	.....	.....	.....	.....	.....	678,572
1888	.....	under	.....	.....	690,333	.....	.....	.....	.....	.....	.....	.....	.....	690,333
1889	.....	Newhall	.....	.....	303,220	.....	.....	.....	.....	.....	.....	.....	.....	303,220
1890	.....	and	.....	.....	307,360	.....	.....	.....	.....	.....	.....	.....	.....	307,360
1891	.....	Ventura	.....	.....	323,600	.....	.....	.....	.....	.....	.....	.....	.....	323,600
1892	.....	County	.....	.....	385,049	.....	.....	.....	.....	.....	.....	.....	.....	385,049
1893	.....	.....	.....	.....	470,179	.....	.....	.....	.....	.....	.....	.....	.....	470,179
1894	.....	.....	.....	1,800	570,469	196,094	.....	.....	.....	.....	.....	.....	14,715	783,078
1895	.....	.....	.....	16,904	474,624	749,695	.....	.....	.....	.....	.....	.....	4,116	1,245,339
1896	.....	.....	.....	39,792	298,866	902,868	.....	.....	.....	.....	.....	.....	2,135	1,257,780
1897	.....	12,000	.....	130,136	631,135	1,064,158	.....	.....	.....	.....	.....	.....	4,000	1,911,569
1898	.....	60,000	.....	132,217	763,871	1,126,000	.....	.....	.....	.....	.....	.....	3,000	2,249,088
1899	.....	217,599	.....	208,370	743,998	1,052,036	.....	.....	.....	.....	.....	.....	1,500	2,677,875
1900	.....	511,550	.....	183,486	628,734	1,280,000	.....	.....	.....	.....	.....	.....	248,945	4,319,950
1901	.....	753,198	.....	203,616	495,943	1,830,000	.....	.....	.....	.....	.....	.....	.....	7,710,315
1902	.....	1,103,793	.....	136,252	646,496	2,027,000	.....	.....	.....	.....	.....	.....	.....	14,356,910
1903	.....	2,305,613	.....	131,125	682,185	793,765	.....	.....	.....	.....	.....	.....	3,670	24,334,481
1904	.....	2,224,550	.....	120,506	650,779	1,241,304	.....	.....	.....	.....	.....	.....	39,392	29,548,634
1905	.....	2,118,312	.....	96,871	476,898	2,226,768	.....	.....	.....	.....	.....	.....	29,650	34,298,041
1906	.....	2,434,512	.....	72,810	404,379	2,675,650	.....	.....	.....	.....	.....	.....	10,000	32,623,229
1907	.....	3,294,206	.....	69,060	435,584	3,372,465	.....	.....	.....	.....	.....	.....	69,090	40,102,512
1908	.....	4,273,314	.....	67,862	498,015	5,138,959	.....	.....	.....	.....	.....	.....	125,475	48,306,737
1909	.....	5,157,252	.....	66,338	516,628	4,350,898	.....	.....	.....	.....	.....	.....	126,775	58,191,723
1910	.....	6,281,221	.....	74,725	652,575	3,729,618	.....	.....	.....	.....	.....	.....	58,970	77,697,568
1911	.....	7,081,165	.....	71,255	661,785	3,223,661	.....	.....	.....	.....	.....	.....	51,350	83,744,044
1912	.....	5,813,037	.....	65,715	859,885	3,073,427	.....	.....	.....	.....	.....	.....	45,870	90,074,439
1913	.....	6,189,561	.....	62,406	1,022,052	2,898,846	.....	.....	.....	.....	.....	.....	27,375	97,867,184
1914	.....	6,495,100	.....	55,743	968,421	2,504,475	.....	.....	.....	.....	.....	.....	27,375	103,623,695
1915	.....	5,661,878	.....	53,000	1,036,305	2,110,133	.....	.....	.....	.....	.....	.....	27,375	89,566,779
1916	.....	5,076,306	.....	56,775	1,122,033	1,721,453	.....	.....	.....	.....	.....	.....	27,450	91,822,362
1917	.....	4,750,582	.....	56,570	1,186,407	1,501,799	.....	.....	.....	.....	.....	.....	27,375	97,267,832
1918	.....	4,403,281	.....	54,613	1,386,518	1,397,781	.....	.....	.....	.....	.....	.....	27,375	101,637,870
1919	.....	4,350,084	.....	53,680	1,792,465	1,341,415	.....	.....	.....	.....	.....	.....	27,375	101,221,784
1920	38,116	5,391,497	.....	54,910	2,122,449	1,311,264	.....	.....	.....	.....	.....	.....	25,610	105,721,186
1921	2,518,812	6,012,839	75,588	54,155	2,375,479	1,344,926	.....	.....	.....	.....	.....	.....	24,035	114,849,924
1922	11,169,383	4,512,974	18,560,595	48,339	3,015,877	1,258,287	190,785	.....	.....	.....	.....	.....	20,338	139,626,876
1923	34,355,642	4,064,661	68,810,361	52,862	3,702,404	1,192,036	3,128,694	128,674	157,698	.....	.....	.....	21,058	263,728,895
1924	17,547,916	4,115,144	60,119,659	53,240	4,049,533	907,418	17,517,908	345,427	6,813,489	623,847	10,405	3,100	21,006†	230,366,303
1925	15,861,954	4,490,298	40,116,683	48,213	9,003,751	630,813	13,298,212	346,364	13,449,723	7,391,456	19,029,724	.....	52,841‡	231,568,982
1926	19,064,814	6,987,489	37,931,964	46,865	16,999,876*	675,950	10,354,905	371,981	7,801,586	6,114,430	17,390,131	587,107	53,963¶	224,117,013
1927	26,344,695	7,008,935	34,541,665	49,475	20,006,350*	630,600	8,338,935	374,735	5,887,645	3,506,115	12,751,555	16,424,930	175,665**	230,751,465
1928	19,642,280	5,743,045	62,467,105	***	18,920,940	***	6,454,065	329,485	4,267,010	2,392,325	10,762,795	12,436,370	9,728,585	231,982,605
1929	16,132,800	.....	60,319,600		20,865,600		3,730,600		3,434,500	1,753,900	8,833,900	13,992,400	58,167,700a	291,359,250
Total	162,676,412	128,894,006	382,843,120	2,689,034	125,438,759	61,481,562	63,014,104	1,896,665	41,811,651	21,782,073	68,778,528	43,443,907	69,331,244	3,307,282,320

*Includes Ventura Avenue 17,808,705 barrels; Ventura-Newhall, 2,197,645. **Includes Watsonville, 20,870 barrels; Round Mountain, 8,700 barrels; Rincon, 5,925 barrels; Poso Creek, 40,275 barrels; Potrero, 570 barrels; Newport, 12,485 barrels; Goleta, 86,840 barrels. †Watsonville. ‡Watsonville and Newport. ¶Watsonville and Newport. ***Included in Miscellaneous in 1928.

(a) Includes all fields under which production is not shown in 1929 and also Elwood— 9,378,850 bbls.

OIL EQUIPMENT
& ENGINEERING
EXPOSITION
MARCH
16 TO 23
1930
COME! It will be worth while. Hundreds of new tools and equipment. Engineering exhibits. All the most modern instruments. A. P. I. and other engineering meetings. Thousands of engineers and superintendents will attend.
Many foreign buyers.
Get complete details from Executive Offices: Petroleum Securities Bldg., Los Angeles
SHRINE AUDITORIUM
LOS ANGELES CALIF U.S.A.

Creek, 40,275 barrels; Potrero, 570 barrels; Newport, 12,485 barrels; Goleta, 86,840 barrels. †Watsonville. ‡Watsonville and Newport. §Watsonville and Newport. ***Included in Miscellaneous in 1928.

(a) Includes all fields under which production is not shown in 1929 and also Elwood— 9,378,850 bbls.

Texas Production by Fields by Years, 1896-1929

(Figures in Thousands of Barrels of 42 U. S. Gallons)

NORTH TEXAS

PANHANDLE DISTRICT

	1924	1925	1926	1927	1928	1929
All Sections	207	1,240	....	....	....	....
Hutchinson County	..	....	24,000	33,389	13,795	9,479
Others	....	....	751	e8,024	10,511	22,166
Total	207	1,240	24,751	41,413	24,306	31,645

Year	Burkburnett	Electra	Iowa Park K-M-A	Petrolia-Clay County	Baylor County	Montague-Cook Counties	Wichita-Willbarger Counties	Archer-County-Holliday	Others	Total
1896										....
1897										....
1898										....
1899										....
190										....
1901										....
1902										....
1903										....
1904	....	....	....	65	....	....	....	....	....	65
1905	....	....	....	102	....	....	....	....	....	102
1906	....	....	....	111	....	....	....	....	....	111
1907	....	....	....	83	....	....	....	....	....	83
1908	....	....	....	82	....	....	....	....	....	82
1909	....	....	....	114	....	....	....	....	....	114
1910	....	....	....	127	....	....	....	....	....	127
1911	....	a	....	169	....	....	900	....	....	1,069
1912	....	a	....	197	....	....	4,227	....	....	4,424
1913	a	a	a	345	....	....	8,132	....	....	8,477
1914	a	a	a	551	....	....	8,228	....	....	8,779
1915	a	a	a	349	....	....	5,883	....	....	6,232
1916	a	a	a	303	....	....	7,837	a	....	8,140
1917	a	a	a	282	....	....	9,542	a	....	9,824
1918	a	a	a	297	....	....	12,159	a	....	12,456
1919	20,918	4,461	178	213	....	....	b	58	....	25,828
1920	29,890	3,681	1,311	135	....	....	b	50	....	35,067
1921	18,562	4,206	1,417	132	....	....	b	422	....	24,738
1922	11,487	6 606	937	121	....	....	b	850	....	20,001
1923	9,174	8,856	793	164	....	....	....	5,089	....	24,076
1924	7,109	7,333	1,339	119	....	....	c271	10,869	....	27,040
1925	5,207	6,294	1,300	148	44	111	c3,190	13,578	....	29,872
1926	4,581	5,693	1,692	149	....	912	c4,975	11,722	....	29,724
1927	4,814	5,052	1,211	271	40	5,409	4,924	10,297	....	32,018
1928	3,992	4,512	1,260	85	16	4,254	8,062	7,402	....	29,550
1929	3,327	4,524	1,942	....	....	4,964	10,387	6,600	252	31,996
Total	119,061	61,218	13,380	4,714	100	14,650	88,657	66,937	252	369,996

a—Included under Wichita-Wilbarger Counties. b—See Burkburnett and Electra. c—Includes South Vernon. d—Included in West Texas "Others." 3,235; Gray County, 4,091 and Wheeler County, 698.

WEST AND WEST CENTRAL TEXAS

Year	Brown County	Callahan County	Coleman County	Crane-Upton Counties	Crockett County
1896	....	....	....	....	....
1897	....	....	....	....	....
1898	....	....	....	....	....
1899	....	....	....	....	....
190	....	....	....	....	....
1901	....	....	....	....	....
1902	....	....	....	....	....
1903	....	....	....	....	....
1904	....	....	....	....	....
1905	....	....	....	....	....
1906	....	....	....	....	....
1907	....	....	....	....	....
1908	....	....	....	....	....
1909	....	....	....	....	....
1910	....	....	....	....	....
1911	....	....	....	....	....
1912	....	....	....	....	....
1913	....	....	....	....	....
1914	....	....	....	....	....
1916	....	....	....	....	....
1917	....	....	....	....	....
1918	....	....	....	....	....
1919	....	....	....	....	....
1920	....	....	....	....	....
1921	....	....	....	....	....
1922	....	....	....	....	....
1923	....	....	....	....	....
1924	....	....	....	....	....
1925	....	....	....	....	....
1926	....	....	....	....	....
1927	....	....	....	....	....
1928	....	....	....	....	....
1929	....	....	....	....	....
Total	20,796	7,202	3,900	74,549	2,414

WEST AND CENTRAL WEST TEXAS—Continued

PECOS COUNTY

1927	5,220
1928	22,111
1929	41,317
Total	68,648

WINKLER COUNTY

1927	3,046
1928	57,502
1929	50,222
Total	110,770

Year	Desdemona	Eastland County	Howard County	Jack County	Jones County	Mitchell-Scurry Counties	Strawn-Palo Pinto County	Reagan County	Moran-Shackelford County	Stephens County	Throckmorton County	Young County	Others	Total
1896	....	.										....	....	....
1897	....	.										....	....	....
1898	....	.										....	....	....
1899	....	.										....	....	....
1900	....	.										....	....	....
1901	....	.										....	....	....
1902	....	.										....	....	....
1903	....	.										....	....	....
1904	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1905	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1906	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1907	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1908	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1909	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1910	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1911	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1912	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1913	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1914	....	....	....	....	....	....	....	....	....	....	....	....	....	68
1916	....	....	....	....	....	....	175	....	13o	....	....	....	....	311
1917	....	93	....	....	....	....	341	....	68	36	....	....	....	544
1918	....	3,107	....	....	....	....	186	....	55	790	....	....	....	4,620
1919	7,376	22,380	....	....	....	....	101	....	33	10,514	....	....	....	40,664
1920	5,098	10,141	....	....	....	....	512	....	49	23,852	....	135	3	39,989
1921	2,467	5,887	....	....	....	....	262	....	50	31,038	....	2,820	5	42,717
1922	3,489	4,787	....	....	....	34	602	....	309	14,925	....	3,723	10	28,139
1923	2,762	3,764	....	16	....	166	403	....	1,426	10,062	....	2,351	14	21,235
1924	2,573	2,627	....	11	....	469	323	1,079	1,268	7,129	....	598	11	16,418
1925	e	3,711	....	9	....	818	228	8,982	1,085	5,729	44	3,432	12	26,158
1926	702	2,133	34	f	45	288	159	11,243	2,602	4,414	65	2,767	3,265	32,899
1927	e	2,755	1,137	248	843	1,342	446	9,421	3,598	3,289	884	3,395	8,367g	78,109
1928	e	2,775	4,803	540	887	1,106	160	6,856	3,434	2,750	344	3,063	845	140,758
1929	e	2,464	15,092	1,024	1,557	959	156	6,580	4,183	2,319	240	2,741	60,269	154,551
Total	24,467	66,624	21,066	1,848	3,332	5,182	4,104	44,161	18,473	116,847	1,577	25,025	72,801	627,339

e—Desdemona included with Eastland County. f—Jack County included in West Texas "Others." g—Includes Winkler County, 3,045; Pecos County 5,219; Ector County, 12; and Others, 91.

SOUTHWEST TEXAS

Year	Dale	Laredo Dist.	Luling	Lytton Springs	Rockdale Minerva	Salt Flat	Somerset	Thrall	Misc.	Totals
1915	....	....	....	....	....	....	....	613	181	794
1916	....	....	....	....	....	....	....	433	123	556
1917	....	....	....	....	....	....	....	177	65	242
1918	....	....	....	....	....	....	....	137	158	195
1919	....	....	....	....	....	....	94	8	48	150
1920	....	....	....	....	....	....	245	8	60	313
1921	....	....	....	....	....	....	482	73	51	1,914
1922	....	766	....	....	94	....	955	51	48	606
1923	....	1,592	958	....	230	....	1,335	34	35	4,184
1924	....	1,965	10,210	....	*	....	1,023	25	218	13,441
1925	....	3,488	9,706	2,571	*	....	1,116	17	289	17,187
1926	....	4,346	7,832	1,955	*	....	789	*	316	15,238
1927	*	4,440	6,072	753	*	....	425	*	273	11,992
1928	365	2,791	4,911	457	*	215	266	*	251	9,257
1929	183	3,941	4,260	354	....	13,667	470	....	743	25,612
Total	548	23,335	43,949	6,090	324	13,882	7,200	1,576	2,759	101,681

SKILLED SUPERVISION GUARANTEES THE QUALITY OF GULF PRODUCTS

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

GULF REFINING COMPANY

General Sales Offices

PITTSBURGH, PA.

District Sales Office

New York Boston Philadelphia Louisville Atlanta Houston New Orleans

Ocean Terminals

Boston (Beverly), Mass.
Providence, R. I.
New York Harbor (Bayonne, N. J.)
Jacksonville, Fla.
Port Tampa, Fla.
Mobile (Magazine Point, Ala.)
Philadelphia (Girard Point, Pa.)
Charleston, S. C.
Savannah, Ga.
New Orleans (Gretna, La.)
Port Arthur, Texas
Galveston, Texas

Texas Production by Fields by Years, 1896-1929

(Continued from page 142)

EAST CENTRAL TEXAS
(Figures in Thousands of Barrels of 42 U. S. Gallons)

TEXAS GULF COAST
(Figures in Thousands of Barrels of 42 U. S. Gallons)

Year	Mexia-Currie-Richland	Wortham	Corsicana	Powell	Corsicana-Powell	Nigger Creek	Marion County	Total	Batson	Big Creek	Barbers Hill	Boling	Blue Ridge	Damon Mound
1896	....	....	2	....	....	....	....	2	....	....	....	....	....	....
1897	....	....	66	....	....	....	....	66	....	....	....	....	....	....
1898	BOGGY CREEK		545	....	....	....	....	545	....	....	....	....	....	....
1899	1927 35		668	....	....	....	....	668	....	....	....	....	....	....
1900	1928 292		830	5	....	....	....	835	....	....	....	....	....	....
1901	1929 1125		763	37	....	....	....	800	....	....	....	....	....	....
1902	Total 1452		402	100	....	....	....	502	....	....	....	....	....	....
1903			571	47	....	....	....	618	5	....	....	....	....	....
1904			374	129	....	....	....	503	10,905	....	....	....	....	....
1905			313	131	....	....	....	444	3,791	....	....	....	....	....
1906			336	676	....	....	....	1,012	2,388	....	....	....	....	....
1907	....	....	276	597	....	....	....	873	2,167	....	....	....	....	....
1908	....	....	211	399	....	....	....	610	1,594	....	....	....	....	....
1909	....	....	181	383	....	....	....	564	1,206	....	....	....	....	....
1910	....	....	137	450	....	....	252	839	1,113	....	....	....	....	....
1911	....	....	129	373	....	....	678	1,180	1,023	....	....	....	....	....
1912	....	....	233	251	....	....	363	847	845	....	....	....	....	....
1913	....	....	159	283	....	....	262	704	741	....	....	....	....	....
1914	....	....	134	282	....	....	181	597	776	....	....	....	....	....
1915	....	....	143	237	....	....	123	503	704	....	....	....	....	....
1916	....	....	135	216	....	....	65	416	745	....	....	....	....	....
1917	....	....	132	197	....	....	58	387	692	....	....	....	....	....
1918	....	....	g	g	362	....	....	362	655	....	20	....	h	487
1919	....	....	g	g	150	....	....	150	502	....	169	....	25	435
1920	....	....	g	g	530	....	....	530	484	....	136	....	173	1,259
1921	4,717	....	g	g	305	....	....	5,022	516	....	50	....	461	1,354
1922	35,120	....	g	g	246	....	....	35,366	430	....	236	....	416	945
1923	20,085	....	g	g	32,361	....	....	52,446	392	17	173	....	332	822
1924	15 615	....	g	g	33,501	....	....	49,116	542	299	72	....	318	545
1925	9,607	16,838	g	g	17,528	....	....	43,973	546	329	47	10	303	419
1926	5,558	3,250	g	g	10,562	1,791	....	21,161	481	523	146	1,121	483	344
1927	4,328	1,306	g	g	6,450	1,565k	....	13,649	532	1,223	68	791	1,122	336
1928	2,942	625	g	g	4,002	406	....	8,304	498	834	323	828	2,302	363
1929	2,299	501	g	g	2,865	164	....	7,088a	506	1,444	4,487	609	1,207	245
Totals	100,271	22,547	6,740	4,793	108,842	3,926	1,982	250,682	34,779	4,669	5,927	3,359	7,142	7,554

g—Corsicana and Powell combined. h—Blue Ridge included in Coastal "Others." k—Includes Cedar Creek.
(a) Includes Van Zandt County, 133.

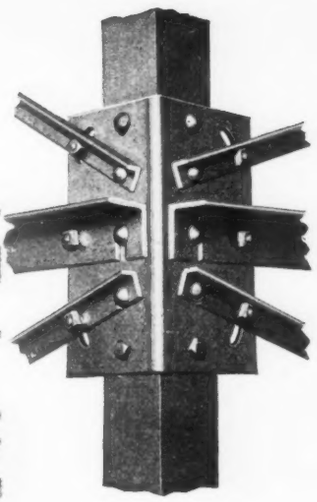
TEXAS GULF COAST—Continued
(Thousands of Barrels of 42 U. S. Gallons)

Year	Dayton	Goose Creek	Hull	Humble	Matagorda County	Orange	Pierce Junction	Saratoga	Sour Lake	Spindle Top	South Liberty	West Columbia	Others	Total	Texas Total
1896				....	....				....	....				....	2
1897	NASH DOME			....	....	RACCOON BEND			....	....	SUGARLAND			....	66
1898	1926 207			....	....	1927 1			....	....	1928 390			....	545
1899	1927 394			....	....	1928 98			....	....	1929 4008			....	668
1900	1928 491			....	....	1929 2104			....	....	Total 4398			....	835
1901	1929			....	....	Total 2203			....	3,593			3,593	3,593	4,393
1902	Total 1092			....	....				44	17,421				17,465	17,967
1903				....	....				8,848	8,601	....	....	....	17,454	18,072
1904				....	152	....	....	739	6,442	3,435	....	....	....	21,673	22,241
1905	60	....	....	18,066	46	....	....	2,922	3,369	1,600	....	....	....	29,854	30,400
1906	192	....	....	3,571	8	....	....	2,289	2,156	1,076	....	....	....	11,680	12,803
1907	120	....	....	2,931	4	....	....	2,199	2,355	1,613	....	....	....	11,389	12,345
1908	40	....	....	3,778	63	....	....	1,635	1,595	1,747	....	....	31	10,483	11,175
1909	18	....	....	3,237	29	....	....	1,184	1,704	1,388	....	...	87	8,853	9,531
1910	10	....	....	2,495	456	....	....	1,024	1,519	1,182	....	....	129	7,928	8,894
1911	4	....	....	2,426	562	....	....	926	1,365	966	....	....	2	7,274	9,523
1912	12	44	....	1,830	300	....	....	1,117	1,175	823	....	....	1	6,147	11,418
1913	13	250	....	1,505	295	18	....	938	1,348	716	....	....	2	5,826	15,007
1914	19	135	....	2,799	164	43	....	890	5,209	580	....	....	2	10,617	20,061
1915	10	119	....	11,062	137	22	....	864	4,115	388	....	....	47	17,468	25,156
1916	9	397	....	10,926	158	18	....	781	4,923	340	....	....	44	18,341	27,764
1917	10	7,300	....	7,390	128	7	....	683	4,763	308	....	....	159	21,440	32,437
1918	7	9,419	330	5,645	100	3	....	791	3,115	502	....	136	40	21,250	38,883
1919	1	7,288	1,476	3,271	53	4	....	616	2,740	459	....	8,129	24	25,192	91,984
1920	1	5,666	4,469	3,692	76	4	....	914	2,073	324	....	10,563	5	29,839	105,738
1921	30	5,647	8,718	3,098	89	705	1,404	937	1,750	321	....	12,573	3	37,656	112,048
1922	39	5,248	6,819	2,553	35	5,492	1,145	662	1,738	295	....	11,632	....	37,685	121,797
1923	75	6,251	7,732	2,449	39	5,312	333	701	2,092	309	....	6,599	....	33,628	135,569
1924	27	4,020	7,287	2,245	73	4,182	163	545	1,650	365	....	4,964	....	27,297	133,519
1925	6	3,661	7,184	1,752	34	5,024	292	587	1,585	429	4,551	4,230	....	30,989	149,419
1926	h	3,281	6,662	1,545	45	3,746	907	455	1,815	13,370	2,117	3,330	714	41,085	164,858
1927	h	2,979	6,220	1,158	h	1,831	3,101	405	1,634	21,584	1,152	3,535	1,451	49,122	226,303
1928	210	2,552	4,167	683	109	1,466	3,980	383	1,235	14,021	1,438	2,946	335*	39,614	252,681
1929	...	2,140	3,417	3,043	...	1,059	5,096	346	983	9,923	2,208	2,382	4,987**	43,837	298,848
Totals	913	66,397	64,474	103,150	3,155	28,936	16,421	25,533	73,340	107,679	11,466	71,019	8,063	644,679	2,122,945

h—Dayton included with Coastal "Others."
*Includes High Island, 170,450—Fannett, 4,000—Allen Dome, 17,450—Moore's Dome, 45,700—Refugio, 97,800.
**Includes Somerville, 705; Damon Mountd, 245; Fannett, 203; No. Dayton, 46; Port Neches, 51; Refugio, 1993.

All-Steel Rig for Permanency

This Rig is all Steel and all Parkersburg. The IC Type Center Trunnion Steel Walking Beam gives a longer straight stroke and eliminates side sway and wearing.
There is economy in Steel.



PARKERSBURG STEEL DERRICKS

***Built to* A. P. I. Standards with Rigid Strength for Today's and Tomorrow's Deep Drilling**

This is the age of STEEL!
The word itself signifies STRENGTH and Structural Steel, if properly coated, spells PERMANENCY.

Parkersburg All-Steel Rigs, with Structural Steel Derricks and the necessary steel component parts, offer to the Oil and Gas Industry, definite economies in fewer replacements, lessened wind load, removal of fire hazard, quick assembly, portability and everlasting satisfaction.

There is a certain pride in being able to say "all my rigs are Parkersburg" because that means the best in Oil Country Equipment.

For complete information on Parkersburg All-Steel Rigs, write for Bulletin "E".

Parkersburg

The PARKERSBURG RIG and REEL Co.

PARKERSBURG, W. Va. and Branches

THE PARKERSBURG RIG AND REEL CO. PARKERSBURG WEST VIRGINIA QUALITY SERVICE MADE IN U.S.A.

Louisiana Production by Fields by Years, 1905-1929

Figures taken from Mineral Resources of the United States published by the Department of Commerce

(Thousands of Barrels of 42 U. S. Gallons)

NORTHERN

Year	Bellevue	Caddo	Cotton Valley	De Soto	Elm Grove	Haynes-ville	Homer	Red River (Bull Bayou Critchton)	Urania	Other	Total	Total State	Year
1905	....	....	....	....	....	....	....	....	....	....	....	8,910	1905
1906	....	3	....	....	....	....	....	....	....	....	3	9,076	1906
1907	....	50	....	....	....	....	....	....	....	....	50	4,999	1907
1908	....	499	....	....	....	....	....	....	....	....	499	5,786	1908
1909	....	1,028	....	....	....	....	....	....	....	....	1,028	2,957	1909
1910	....	5,090	....	....	....	....	....	....	....	....	5,090	6,839	1910
1911	....	6,995	....	....	....	....	....	....	....	....	6,995	10,718	1911
1912	....	7,177	....	....	....	....	....	....	....	....	7,177	9,261	1912
1913	....	9,781	....	....	....	....	....	....	....	....	9,781	12,496	1913
1914	....	7,572	....	3,834†	....	....	....	401	....	....	....	14,306	1914
1915	....	6,472	....	1,797	....	....	....	6,802	....	11	15,082	18,192	1915
1916	....	5,464	....	1,657	....	....	....	4,691	....	10	11,822	15,248	1916
1917	....	5,483	....	1,371	....	....	....	1,665	....	43	8,562	11,392	1917
1918	....	11,144	....	1,066	....	....	....	1,046	....	49	13,305	16,043	1918
1919	....	8,700‡	....	1,200‡	....	....	2,000‡	2,900‡	....	79	14,879	17,188	1919
1920	....	6,336	....	....¶	....	....	21,508	5,923¶	....	....	33,767	35,714	1920
1921	....	5,342	....	719	....	3,161	13,030	2,844	....	77	25,173	27,103	1921
1922	1,050	4,498	....	531	160	19,939	5,673	1,778	....	....	33,629	35,376	1922
1923	2,351	4,178	....	429	220	10,496	3,581	1,207	....	7	22,469	24,919	1923
1924	1,749	4,319	1,211	353	217	6,720	2,837	1,231	....	....	18,637	21,124	1924
1925	1,191	4,173	3,520	....¶	244	4,739	2,400	1,526	18	....	17,811	21,374	1925
1926	816	4,598	2,896	....¶	209	3,609	1,916	1,437	2,535	66	18,082	22,538	1926
1927	496	6,086	2,070	1,491	242	2,766	1,823	**	3,650	***145	18,769	24,178	1927
1928	394	4,920	1,803	1,499	208	2,224	1,579	**	2,574	218	15,420	38,556	1928
1929*	288	4,650	994	1,312	209	1,875	1,446	**	2,139	509a	13,372	21,127	1929
Totals	8,335	124,568	12,494	17,259	1,709	55,520	57,793	33,451	10,916	1,214	311,402	422,615	

†—Includes Sabine.
‡—Estimated.
¶—De Soto included with Red River.
a—Includes Pleasant Hill, 261; Zwolle, 123.
§—Included in others.
**—Included under De Soto.
***—Includes Pleasant Hill, 110 barrels, and Sabine Parish, 35 barrels.

Louisiana Gulf Coast (Salt Dome Fields) by Years, 1905-1929

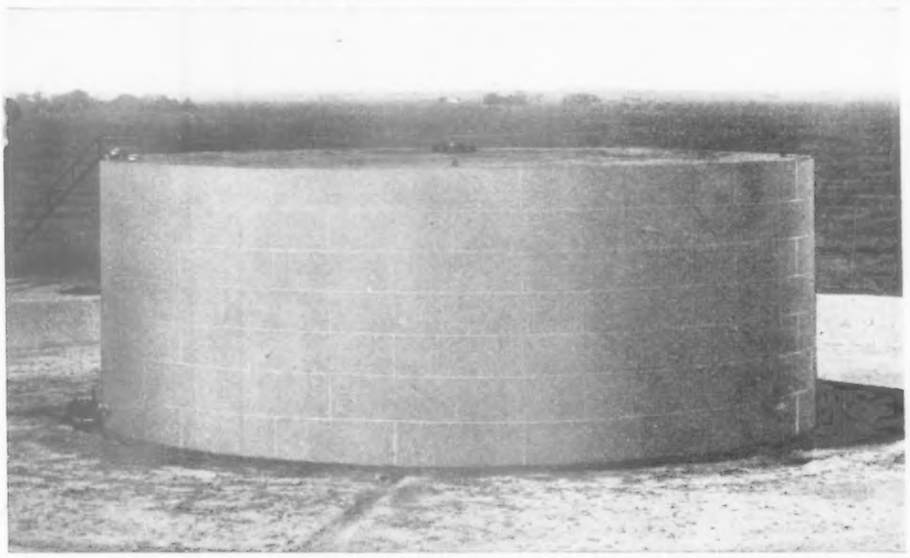
(Thousands of barrel of 42 U. S. Gallons)

Figures taken from Mineral Resources of the United States published by the Department of Commerce.

Year	Anse La Butte	Bayou Bullion	East Hackberry	Edgerly	Evangeline	Hackberry	Jennings	Lockport	Sorrento	Sulphur	Sweet Lake	Vinton	Welsh	Other	Total
1905	9	...	...	...	....	....	8,891	....	...	...	...	...	10	...	8,910
1906	25	...	...	...	....	....	9,025	....	...	...	...	...	23	...	9,073
1907	60	...	...	...	....	....	4,842	....	...	...	...	...	47	...	4,949
1908	145	...	...	...	....	....	5,111	....	...	...	...	...	31	...	5,287
1909	37	...	...	...	....	....	1,996	....	...	...	...	...	26	...	1,929
1910	44	...	...	...	....	....	1,625	....	...	...	...	26	54	...	1,749
1911	62	...	...	...	....	....	1,180	....	...	...	...	2,454	27	...	3,723
1912	25	...	...	...	....	....	1,105	....	...	...	...	932	22	...	2,085
1913	6	...	...	...	...	...	....	1,421	...	...	...	1,888	31	...	2,715
1914	18	...	...	586	...	...	790	...	...	...	...	1,465	18	...	2,499
1915	21	...	...	1,403	...	...	412	...	...	...	...	1,234	...	17	3,110
1916	13	...	...	1,252	...	...	435	...	...	...	...	1,540	...	4	3,426
1917	5	...	...	806	...	...	517	...	...	...	...	1,595	...	25	2,830
1918	3	...	...	512	...	...	399	...	...	...	...	1,839	...	15	2,738
1919	...	...	...	361	...	...	369	...	...	...	...	1,592	...	9	2,309
1920	...	...	...	379	...	...	347	...	...	...	...	1,333	...	3	1,947
1921	47	...	...	259	...	...	232	...	...	...	...	1,379	...	...	1,930
1922	36	...	...	125	...	...	254	...	...	...	...	1,395	...	...	1,747
1923	18	...	...	157	...	...	191	...	...	...	...	2,071	...	...	2,450
1924	12	...	...	166	...	...	204	...	...	...	...	1,968	...	...	2,487
1925*	8	...	...	194	...	...	213	128	...	...	...	2,535	...	...	3,563
1926*	..	...	...	336	...	...	349	477	...	...	...	2,344	...	9	4,456
1927*	...	...	...	494	...	...	419	1,348	...	...	...	1,897	...	589	5,409
1928*	16	217	1,176	422	...	...	415	2,014	...	...	...	1,642	30	473	7,716
1929*	....	87	1,171	289	575	674	373	1,489	282	932	659	1,562	....	434	7,756
Totals	610	304	2,347	7,732	575	674	39,664	6,517	402	2,260	754	32,691	319	1,578	95,793

*Figures taken from weekly estimates as published in The OIL WEEKLY and issued by the American Petroleum Institute.

Right: Wiggins Breather Roof on tank at Sulphur, La. Below: Floating Roof put on old tank at Wichita Falls, Texas



Why suffer losses on your oil stocks?

The losses caused by evaporation in storage tanks equipped with ordinary roofs constitute an unnecessary drain on your stocks of crude or refined products. It can be reduced to practically nothing by equipping oil storage tanks with Wiggins Roofs.

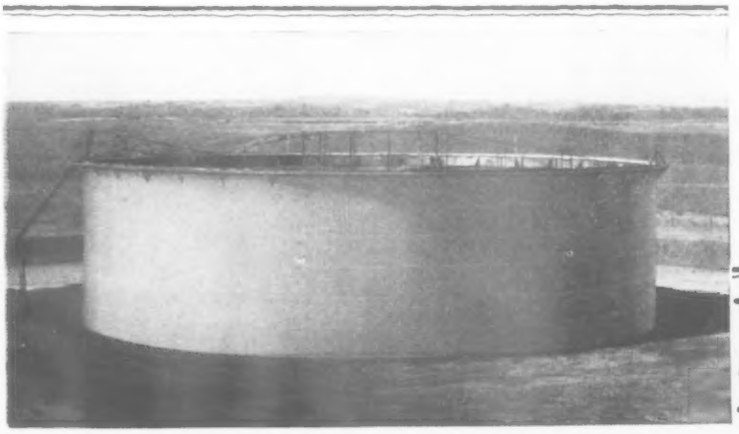
On standing storage, Wiggins Breather Roofs flex up and down with temperature changes so that no vapor is vented out and no air is drawn into the tank. The same vapor above the oil is held throughout the period of storage, except for momentary seasonal readjustment.

The Floating Roof rides on the surface of the oil in working tanks, blanketing practically the entire surface. Evaporation along the shell is prevented by an effective seal which forms a long, sliding contact with the tank shell.

In addition to paying for themselves in a few months and handsome dividends thereafter, Wiggins Roofs give you a free premium through elimination of fire hazard and reduction of sour oil corrosion.

Ask our nearest office for a quotation on equipping some of your present tanks with Wiggins Roofs.

CHICAGO BRIDGE & IRON WORKS



Dallas	3338 Magnolia Bldg.
Chicago	2142 Old Colony Bldg.
New York	3144 Hudson Terminal
Cleveland	2241 Union Trust Bldg.
Detroit	1515 Lafayette Bldg.
Philadelphia	1613 Jefferson Bldg.
Boston	1518 Consolidated Gas Bldg.
San Francisco	1050 Rialto Bldg.
Havana, Cuba	Apartado 2507

WIGGINS ROOFS *Stop* EVAPORATION LOSSES

Wyoming Production by Districts by Years, 1894-1928

(Thousands of Barrels of 42 U. S. Gallons)

Figures from Mineral Resources published by the Department of Commerce.

Year	Big Muddy	Byron Greybull Torchlight	Elk Basin	Ferris	Grass Creek	Hamilton Dome Worm Springs	Lance Creek	Lander-Dallas Derby Dome	Lost Soldier	Mule Creek	Osage	Pilot Butte	Poison Spider So. Casper	Rock Creek	Salt Creek	Teapot	Oregon Basin	La Barge	Other	Total
1894-1913	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4,389

1914	....	96	....	....	....	....	....	27	....	....	....	....	....	...	3,421	....	....	....	16	3,560
1915	†	141	....	....	99	....	....	28	....	....	....	....	....	....	3,971	....	....	....	7	4,246
1916	†	140	721	....	1,370	....	....	63‡	....	....	....	‡	....	....	3,933	....	....	....	7	6,234
1917	665	62	1,530	....	2,756	....	....	50‡	....	....	....	‡	....	....	3,911	....	....	....	4	8,978
1918	3,082	45	1,067	....	2,951	....	....	48	....	....	....	62	....	....	5,337	....	....	....	4	12,596
1919	3,104	27	740	¶	2,049	....	461	62	167¶	....	....	91	.	242	6,225	....	....	....	4	13,172
1920	2,083	69	732	¶	1,573	57	353	84	135¶	182	16	69	.	1,370	10,090	....	....	....	18	16,831
1921	1,927	90	681	¶	1,435	67	346	119	524¶	68	176	46	..	1,681	12,172	....	....	....	11	19,333
1922	1,506	70	652	¶	1,784	111	282	149	751¶	168	182	38	....	1,728	19,248	37	....	....	9	26,715
1923	1,527	57	634	¶	1,589	216	363	137	1,551¶	...	178	29	†	1,429	35,770	1,156	....	....	148	44,785
1924	1,272	33	409	42	1,113	239	786	133	1,733	178	146	29	229	1,181	30,874	1,004	....	....	97	39,490
1925*	1,119	47	313	35	1,224	207	316	104	1,708	111	138	19	228	1,134	21,349	642	....	....	126	28,820
1926*	1,882	†	267	†	1,085	†	85	†	1,774	†	†	†	†	1,032	18,165	445	....	....	1,563	26,298
1927*	1,036	†	344	†	975	†	306	†	1,148	†	†	†	†	1,008	14,605	247	....	....	1,318	20,987
1928*	977	18	374	19	858	292	200	86	1,429	122	149	15	350	921	14,041	6	....	....	1,495	21,361
1929*	898	....	281	..	812	...	101	.	1,291	....	....	...	..	858	11,769	....	1,458	667	1,488	19,623
Totals	21,078	885	8,795	96	21,673	1,189	3,599	1,090	12,211	829	985	398	807	12,584	214,881	3,537	1,458	667	6,313	317,426

1894 All Sections ..... 2 — 1904 All Sections 12
1895 " " ..... 3 — 1905 " " 8
1896 " " ..... 3 — 1906 " " ..... †7
1897 " " ..... 4 — 1907 " " ..... ‡9
1898 " " ..... 5 — 1908 " " 18
1899 " " ..... 6 — 1909 " " ..... ‡20
1900 " " ..... 5 — 1910 " " ..... ‡115
1901 " " ..... 5 — 1911 " " ..... †572
1902 " " ..... 6 — 1912 " " ..... †572
1903 " " ..... 9 — 1913 " " ..... †406

†Estimated. ‡Includes Utah.

*Taken from weekly estimates of the A. P. I. as published in The OIL WEEKLY. †Included under other. ‡Pilot Butte included with Lander-Dallas. ¶Ferris included with Lost Soldier.

Arkansas Production by Fields by Years, 1921-1929

(Thousands of Barrels of 42 U. S. Gallons)

Figures taken from Mineral Resources published by the Department of Commerce

Year	Champagnolle	El Dorado	Smackover	Irma-Nevada	Stephens	Lisbon	Others	Total
1921	...	10,473	...	...	...	...	...	10,473
1922	...	10,592	2,107	...	13	...	...	12,712
1923	...	5,830	30,048	†	723†	...	...	36,610
1924	...	4,760	40,000	450	818	...	...	46,028
1925*	...	3,198	74,383	514	621	...	...	78,716
1926*	...	2,660	52,771	781	598	2,241	4	59,055
1927*	...	2,206	35,822	781	491	1,419	54	40,773
1928*	3,688	1,917	24,747	595	385	740	35	32,107
1929*	2,773	1,664	19,640	412	367	477	37	25,370
Total	6,461	43,300	279,518	3,533	4,025	4,877	130	341,844

†Irma included with Stephens.
*Figures taken from The OIL WEEKLY, as furnished by the A. P. I.

The Only City in Texas where RELIABLE Oil Information is always available

Operating headquarters for both the West Texas Permian Basin and Sweet Oil Area

SAN ANGELO —the center of the Permian Basin and Sweet Oil Areas in West Texas—eliminates the necessity for two operating offices in these areas—provides for the economic and efficient operation of both areas from ONE CITY—offers excellent banking, office, legal, hotel, recreational, school and cultural advantages and facilities—assures pleasant living conditions—

Write for Information

San Angelo
Texas

BOARD OF CITY DEVELOPMENT

UNITED STATES FIELD STATISTICS FOR 1929

Wells Drilled for Oil and Gas in the United States, 1859-1929

Figures from the United States Mineral Resources, 1924, Part 11

Year	Wells Completed	Dry Holes	Year	Wells Completed	Dry Holes	Year	Wells Completed	Dry Holes
1859-1907	287,922*	54,940*	1914	23,137	4,142	1921	21,937	5,160
1908	16,909	3,214	1915	14,157	2,981	1922	24,689	5,332
1909	18,327	3,404	1916	24,619	4,039	1923	24,438	5,883
1910	14,940	2,422	1917	23,407	4,851	1924	21,888	5,044
1911	13,768	2,363	1918	25,687	5,613	1925	25,623	6,734
1912	17,180	2,855	1919	29,173	5,986	1926	28,995	8,242
1913	25,590	4,282	1920	33,911	7,364	1927**	22,301	6,319
						1928**	19,964	6,249
						1929**	23,463	7,211
						Total	782,025	164,630

*From papers on the Conservation of Mineral Resources, U. S. Geological Survey Bulletin 394, 1909, pp 30-50.
**Oil Weekly figures.

Recapitulations—United States

	Completions		Producers		Gas Wells		Failures		Initial Prod.		*Annual Prd.	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Arkansas	300	295	147	134	21	32	132	129	21,617[274]	61,438	25,720,600	32,108,200
California	1,072	668	968	574	...	...	86	94	1,651,581	656,592	291,424,600	31,482,605
Eastern States	8,460	6,852	4,951	3,979	1,795	1,542	1,714	1,337	227,805[1941]	104,743	46,855,000	40,316,700
Kansas	893	956	437	427	31	87	428	442	137,579[372]	95,024	41,027,220	38,246,850
Louisiana	897	778	278	201	271	227	345	350	103,515[5152]	92,741	21,038,011	23,137,150
Mountain States	589	575	269	309	83	45	237	221	117,000	39,240	26,410,000	29,667,295
Oklahoma	3,387	3,579	1,836	1,872	374	450	1,177	1,254	1,036,524[3700]	1,038,272	251,256,010	243,127,650
Texas	7,865	6,266	4,239	3,486	534	350	3,092	2,430	3,108,524[11755]	4,318,323	298,365,802	252,680,750
Total	23,463	19,964	13,125	10,982	3,109	2,733	7,211	6,249	6,404,145[22904]	6,406,370	1,002,097,243	891,267,200

Small figures in Initial Production denote gas production in millions of cubic feet.
*Based on A. P. I. daily average production estimates.

Eastern States

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Illinois	382	135	302	75	2	7	78	53	15,134[2]	1694	6,324,000	6,459,000
Indiana	184	190	69	78	31	38	84	74	1689[79]	2277	975,000	1,053,000
Kentucky	1108	1331	598	864	73	49	437	418	42,353	39,108	7,835,000	7,325,000
Michigan	490	139	339	86	29	29	122	24	129,205[88]	17,842	4,392,000	595,000
Mississippi	13	....	....	....	....	....	13	..	.....	.....	.....	.....
New York	317	390	309	370	....	6	8	14	1155	1144	3,323,000	2,573,000
Ohio	2331	1637	861	703	865	540	605	394	23,538[928]	28,954	6,687,000	7,030,000
Pennsylvania	2581	1863	2175	1534	179	197	227	132	10,342	6804	11,715,000	9,876,000
Tennessee	4	58	2	36	...	4	2	18	60	3426	20,000	47,000
West Virginia	1050	1021	296	217	616	612	138	192	4329[622]	3695	5,584,000	5,704,000
Total	8460	6852	4951	3979	1795	1542	1714	1337	227,805[1941]	104,743	46,855,000	40,316,700

Arkansas

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Ashley County	2	2	..	..	..	..	2	2	...	.....	.....	.....
Bradley County	3	1	..	..	..	..	3	1	...	.....	.....	.....
Calhoun County	1	2	..	..	..	..	1	2	...	.....	.....	.....
Chicot County	2	3	..	..	..	..	2	3	...	.....	.....	.....
Champagnolle Co.	..	146	..	88	..	14	..	44	...	50,577[240]	2,772,850	3,688,300
Clark County	1	1	..	..	..	..	1	1	...	.....	.....	.....
Cleveland County	..	1	..	..	..	..	..	1	...	.....	.....	.....
Columbia County	1	2	..	1	..	1	1	..	...	100	.....	.....
Drew County	1	1	..	..	..	..	1	1	...	.....	.....	.....
El Dorado County	..	2	..	1	..	..	..	1	...	30[11]	1,663,900	1,917,300
Johnson County	2	5	..	..	1	5	1	..	...	.....[9]	.....	.....
Lincoln County	..	1	..	..	..	..	..	1	...	.....	.....	.....
Lisbon	..	..	..	..	..	..	..	..	...	.....	477,100	740,350
Miller County	1	..	..	..	..	..	1	..	...	.....	.....	.....
Nevada County	6	10	3	9	..	..	3	1	...[85]	480	411,900	594,950
Ouachita County	68	3	56	2	1	..	11	1	5,818[3]	500	.....	.....
Smackover County	..	38	..	31	..	7	..	..	...	9,701[48]	2,241,550	24,746,700
Stephens County	..	1	..	1	..	..	..	..	...	20	367,150	385,350
Union County	133	..	78	..	16	..	39	..	15,202[177]	.....	.....	.....
Others	..	..	..	..	..	..	..	..	...	.....	36,700	35,250
Wildcats	79	76	10	1	3	5	66	70	597[94]	30[25]	.....	.....
Total	300	295	147	134	21	32	132	129	21,617[274]	61,438	25,720,600	32,108,200

*—Large figures indicate oil in barrels, and small figures indicate gas in millions of cubic feet.

"SOTCO"

Rotary Fishing Tools

Always Get The "Fish"

You will never know how quickly and easily your toughest fishing problems can be solved until you try "SOTCO" Rotary Fishing Tools — now being used successfully in all domestic and foreign petroleum fields. There is a "SOTCO" fishing tool for every kind of fish, and each one is backed by years of successful performance under all conditions of service.

"SOTCO" Hydraulic Knuckle (above). This massively constructed hinged connection for rotary drill pipe operates by hydraulic pressure, affording positive circulation regardless of angle at which tool is being operated. (Can be used in conjunction with any fishing tool in fishing for pipe lost in "big hole", or "cave-ins."

Write at once for descriptive folders of all "SOTCO" products.

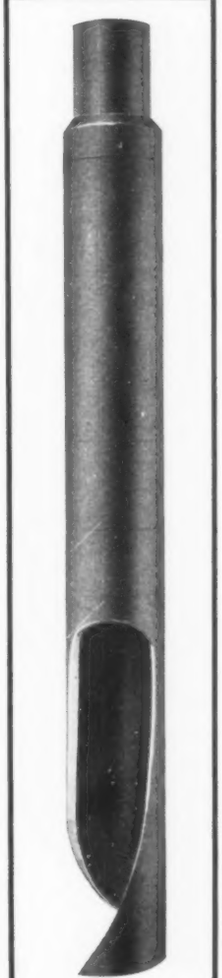
SPECIALTY OIL TOOL CO.
Factory: Brea, California
Sales Offices: 507 Merritt Building, Los Angeles, Calif.
Brea 40 — Phones — VAndike 2332
New York Office: American Steel Export Co., 535 Fifth Avenue
Cable Address: "SOTCO", Los Angeles
Stocked and Distributed by
Lucey Products Corporation in Mid-Continent and Gulf Coast Territories

"SOTCO" Plain Wall Hook (above). Same as hydraulic wall hook but without hydraulic attachment, but with tool joint box for screwing into hydraulic knuckle shown above.

"SOTCO" Hydraulic Wall Hook (above). Can be swung over to describe a large circle after pipe lost in "cave-ins." Slips do not take hold until pipe is in line with hole. Operates by pressure of pumps—maintains positive circulation.

"SOTCO" Adjustable Grab (left). Can be opened or shut at will of operator at any point in hole and locked in either open or shut position. Massive tool can be spudded in on bottom without damage to tool. Has actually saved many wells from abandonment after other methods have failed.

"SOTCO" Combination Trip Pack-Off Overshot (Socket.) Fitted with regular combination socket slips—actuated by hydraulic pressure. Engages the drill pipe at any elevation without depending on coupling shoulders. Right hand trip release. Will catch both drill pipe and collar—8⅝" to 2½".



California

Field—	Completions 1929	Completions 1928	Producers 1929	Producers 1928	Gas Wells 1929	Gas Wells 1928	Failures 1929	Failures 1928	Initial Production 1929	Initial Production 1928	Annual Production 1929	Annual Production 1928
Athens-Rosecrans	10	13	10	12	..	..	..	1	5,275	6,775	1,753,900	2,392,325
Baldwin Hills												
Inglewood	11	6	11	6	..	..	..	1	2,665	1,255	8,833,900	10,762,705
Belridge	17	11	17	11	..	..	..	..	820	955	.....	1,526,490
Brea-Olinda												
Fullerton	3	9	3	9	..	..	.	..	750	8,285	.....	5,743,045
Buena Vista	..	1	..	1	..	..	..	..	....	200	.....	.....
Cat Canyon	1	9	1	9	..	..	..	..	200	2,450	.....	.....
Coalinga	..	..	..	..	..	..	..	..	....	....	.....	4,655,285
Dominguez	2	6	2	6	..	..	..	..	3,300	505	3,434,500	4,267,010
East Coyote	..	2	..	..	..	..	..	2	....	....	.....	4,902,000
Elk Hills	..	..	..	..	..	..	..	..	....	....	.....	8,107,200
Elwood	13	3	13	3	..	..	..	..	53,700	14,800	9,378,850	.....
Fruitvale	16	4	16	4	..	..	..	..	9,395	3,790	.....	133,435
Goleta (b)	..	..	..	..	..	..	..	..	....	....	.....	895,150
Hawthorne	..	1	..	1	..	..	..	..	....	1,200	.....	.....
Huntington Beach	24	62	24	57	..	..	..	5	10,545	33,685	16,132,800	19,642,280
Kern Front	31	34	30	33	..	..	1	1	6,880	6,045	.....	5,071,285
Kettleman Hills	2	..	2	..	..	..	..	..	7,900	....	1,956,150	.....
Long Beach	230	237	228	235	..	..	2	2	181,188	341,600	60,319,600	62,467,105
Lawndale	4	..	1	..	..	..	3	..	1,200	....	.....	.....
Midway-Sunset	10	26	10	24	..	..	..	2	5,265	14,285	25,627,050	27,314,095
McKitrick	1	..	1	..	..	..	..	..	100	....	.....	.....
Maricopa Flats	23	..	22	..	..	..	1	..	34,068	....	.....	.....
Montebello	4	..	3	..	..	..	1	..	300	....	.....	4,369,640
Mt. Poso	19	14	16	10	..	..	3	4	4,844	1,074	.....	53,975
Newhall	1	..	1	..	..	..	..	..	200	....	.....	.....
Potrero	5	2	5	2	..	..	..	..	2,800	2,000	.....	107,380
Richfield	16	17	16	14	..	..	..	3	3,920	1,740	.....	6,798,675
Rincon	11	32	11	32	..	..	..	..	3,105	16,980	.....	1,082,735
Round Mountain	12	10	10	9	..	..	2	1	2,674	3,805	.....	44,455
Santa Barbara	7	..	2	..	..	..	5	..	1,450	....	76,611,200	.....
Santa Fe Springs	413	26	411	24	..	..	2	2	1,187,904	93,375	.....	16,093,930
Seal Beach	52	35	52	25	..	..	..	10	62,226	24,707	13,992,400	12,436,370
South Mountain	4	4	4	4	..	..	..	..	460	340	.....	.....
Summerland	6	..	6	..	..	..	..	..	1,040	....	.....	.....
Torrance	..	..	..	..	..	..	..	..	....	....	3,730,600	8,338,935
Ventura	53	34	53	34	..	..	..	..	55,707	66,250	20,865,600	18,920,940
Wheeler Ridge	1	4	1	4	..	..	..	..	50	240	.....	329,485
W. Coyote	3	..	2	..	..	..	1	..	550	....	.....	.....
Wildcats	67	66	2	5	..	..	65	61	1,100	1,104	.....	.....
Others	..	..	..	..	..	..	..	..	....	....	48,788,850	7,411,455
Total	1072	668	968	574	..	..	86	94	1,651,581	656,592	291,424,600	231,482,605

(b) Production of Elwood included for 1928.

North Louisiana

Bellevue	..	..	..	..	..	..	..	..	...	.....	238,350	394,050
Bienville Parish	3	3	..	1	2	1	1	1	^{13}	35^{2}	.....	.....
Bossier Parish	27	60	1	3	16	46	10	11	5^{91}	200^{978}	.....	.....
Caddo Parish	101	58	57	38	5	8	40	12	7^{63}	$2,937^{31}$	4,650,350	4,920,150
Catahoula Parish	..	1	..	..	..	..	..	1	...	.....	.....	.....
Claiborne Parish	3	2	..	2	..	..	3	..	...	23	.....	.....
Cotton Valley	..	3	..	1	..	2	..	..	...	140^{65}	994,050	1,802,800
DeSoto-Red River	21	17	2	3	3	8	12	2	170^{53}	123^{35}	1,312,250	1,499,550
E. Carroll	2	3	..	..	1	1	1	..	^{31}	^{51}	.....	.....
Elm Grove	..	1	..	..	..	1	..	..	...	^{20}	209,200	208,250
Franklin	1	..	..	..	..	..	1	..	...	.....	.....	.....
Grant Parish	3	2	..	1	..	..	3	1	...	60	.....	.....
Haynesville	..	..	..	..	..	..	..	..	...	.....	1,874,900	2,223,700
Homer	..	..	..	..	..	..	..	..	...	.....	1,445,600	1,579,000
LaSalle Parish	24	4	15	2	1	..	8	2	1,240	87	.....	.....
Madison Parish	2	11	..	..	..	..	2	1	...	.....	.....	.....
Moorehouse Parish.	36	26	..	1	34	16	2	9	^{337}	22^{224}	.....	.....
Natchitoches Parish	..	1	..	..	..	..	..	1	...	.....	.....	.....
Ouachita Parish	92	39	1	1	88	37	3	1	19^{1214}	^{243}	.....	.....
Pleasant Hill	..	..	..	..	..	..	..	..	...	.....	261,050	218,950
Richland Parish	53	48	1	2	46	42	6	4	39^{1726}	54^{1547}	.....	.....
Sabine Parish	13	11	8	5	1	1	4	5	$2,802^{2}$	330^{4}	.....	.....
Tensas County	1	..	..	..	..	..	1	..	...	.....	.....	.....
Union Parish	34	22	2	1	31	17	1	4	152^{225}	128^{78}	.....	.....
Urania Field	..	1	..	1	..	..	..	..	...	50	2,138,550	2,574,000
Webster Parish	27	55	6	9	17	36	4	10	519^{1142}	$5,161^{441}$	.....	.....
Winn Parish	4	2	4	..	..	..	..	2	340	.....	.....	.....
Zwolle	..	..	..	..	..	..	..	..	...	.....	123,261	.....
Wildcats	149	167	45	2	24	11	80	154	$18,287^{177}$	85	.....	.....
Others	..	..	..	..	..	..	..	..	...	.....	124,650	.....
Total N. La.	596	523	142	73	269	227	182	223	$23,573^{5077}$	$9,435^{3649}$	13,372,211	15,420,450
Total S. La.	301	255	136	128	2	..	163	127	$77,942^{75}$	83,305	7,665,800	7,716,700
Total	897	778	278	201	271	227	345	350	$103,515^{5152}$	$92,741^{3649}$	21,038,011	23,137,150

*—Large figures indicate oil in barrels, and small figures indicate gas in millions of cubic feet.

The DRAW WORKS Roller Bearing

WHERE can a Roller Bearing find a greater test than in the drawworks? Where can the manufacturer give the drilling company or contractor greater returns from the use of the right Roller Bearing than in such particularly strenuous jobs as drawworks handle?

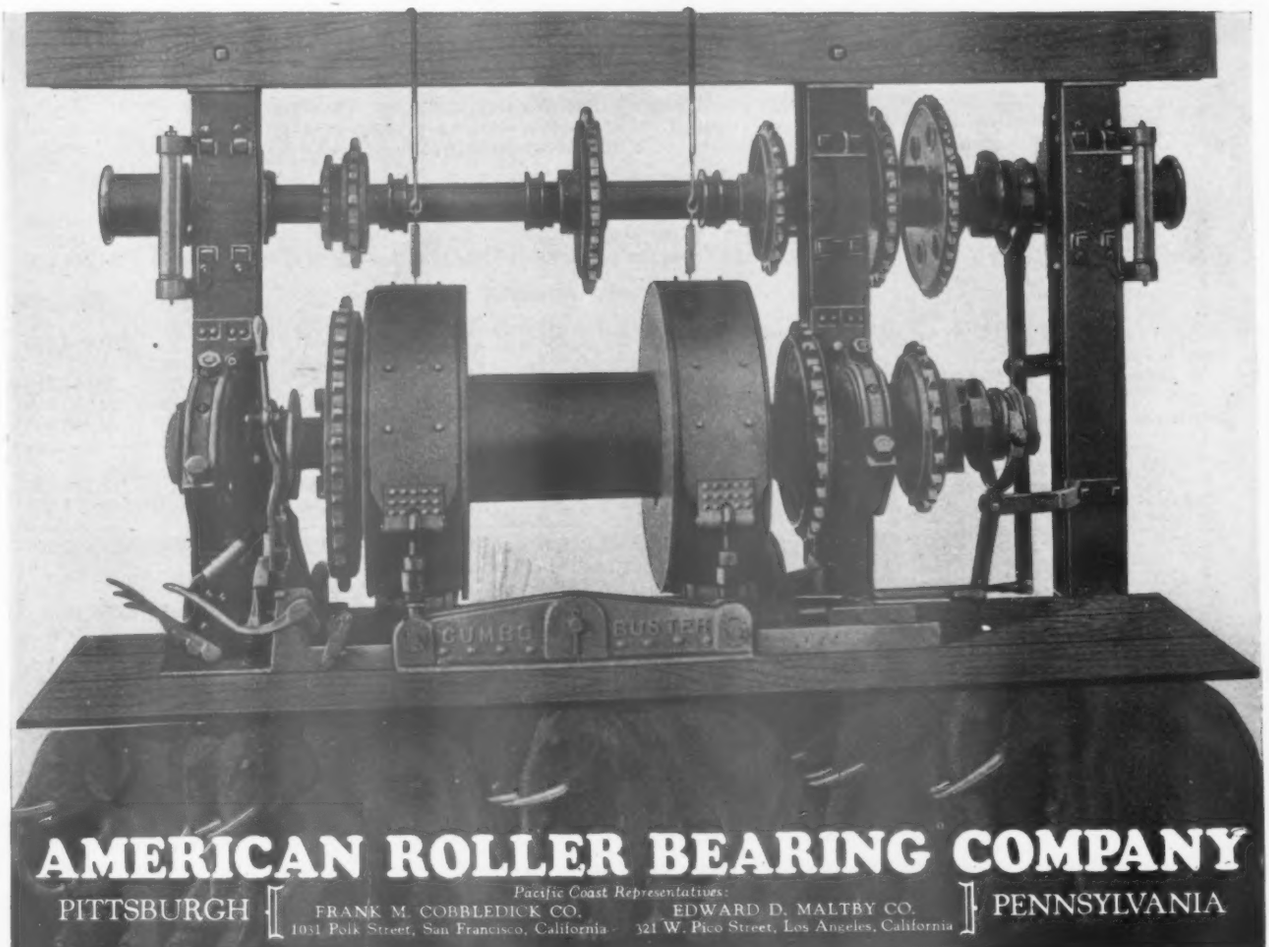
American Well and Prospecting Company went to headquarters for their Henvy Duty Bearings used in their new drawworks shown here. The Bearings in this installation will never have to be field-adjusted nor will they ever give any trouble, if they live up to all the records of American Bearings in drilling service.

AMERICAN ROLLER BEARINGS HEAVY DUTY

CONSIDERABLE thought is being given right now to bigger and better drawworks. This gives the manufacturer fine opportunity to build them better by basing the whole works on American Heavy Duty Bearings.

Finer bearing steel, longer life, or more reliable, free-from-trouble service is not to be obtained from any bearing than from the standardized oil country bearing called—

HEAVY DUTY AMERICAN



AMERICAN ROLLER BEARING COMPANY

PITTSBURGH, PENNSYLVANIA

Pacific Coast Representatives:
FRANK M. COBBLEDICK CO., 1031 Polk Street, San Francisco, California
EDWARD D. MALTBY CO., 321 W. Pico Street, Los Angeles, California

Louisiana Gulf Coast

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Abbeville	1	..	..	..	..	..	1	..	...	.....	.....	.....
Anse La Butte	6	..	1	..	..	..	5	..	1,000	.....	16,300	16,900
Bay St. Elaine	3	..	..	..	2	..	1	..	...[75]	.....	.....	.....
Bayou Bouillon	9	8	1	5	..	..	8	3	100	8,020	67,300	217,600
Bayou Blue	4	..	2	..	..	..	2	..	465	.....	10,900	.....
Bayou des Glaise	1	..	..	..	..	..	1	..	...	.....	.....	.....
Belle Isle	5	..	..	..	..	..	5	..	...	.....	.....	.....
Black Bayou	9	..	4	..	..	..	5	..	1,375	.....	26,350	.....
Caillou Island	1	..	..	..	..	..	1	..	...	.....	.....	.....
Darrow	1	..	..	..	..	..	1	..	...	.....	.....	.....
Dog Lake Bayou	2	..	1	..	..	..	1	..	4	.....	3,800	.....
East Hackberry	19	37	11	22	..	..	8	15	12,125	27,076	1,171,050	1,176,600
Edgerly	15	23	11	15	..	..	4	8	3,390	962	288,850	422,850
Evangeline	18	34	12	22	..	..	6	12	1,375	1,936	575,150	373,900
Four Isle Bayou	2	..	..	..	..	..	2	..	...	.....	.....	.....
Garden Island	2	..	..	..	..	..	2	..	...	.....	.....	.....
Hackberry	56	..	34	..	..	..	22	..	15,345	.....	673,500	.....
Hager Dome	3	..	..	..	..	..	3	..	...	.....	.....	.....
Houma	2	..	..	..	..	..	2	..	...	.....	.....	.....
Jefferson Island	2	..	..	..	..	..	2	..	...	.....	.....	.....
Lake Barre	1	..	1	..	..	..	..	..	1,680	.....	42,850	.....
Lake Pelto	1	..	1	..	..	..	..	..	400	.....	24,400	.....
Lockport	16	23	12	18	..	..	4	5	5,100	7,235	1,420,850	1,489,450
Loreauville	6	9	..	1	..	..	6	8	...	15	.....	4,000
Port Barre	3	..	2	..	..	..	1	..	2,600	.....	39,150	.....
Roanoke	3	..	..	..	..	..	3	..	...	.....	.....	.....
Sorrento	5	8	..	4	..	..	5	4	...	8,200	104,000	282,200
So. Calcasieu Lake	2	..	..	..	..	..	2	..	...	.....	.....	.....
Starks Dome	15	3	6	2	..	..	9	1	800	5,760	156,000	186,000
Sulphur	23	12	12	10	..	..	11	2	16,475	19,530	1,328,100	932,000
Sweet Lake	2	3	2	2	..	..	..	1	460	5,760	95,050	659,300
Thibodaux	15	..	..	..	..	..	15	..	...	.....	.....	.....
Vermilion Bay	1	..	..	..	..	..	1	..	...	.....	.....	.....
Vinton	26	33	21	23	..	..	5	10	10,818	1,637	1,561,750	1,642,500
Welsh	1	..	..	..	..	..	1	..	...	.....	42,000	30,300
White Castle	1	..	1	..	..	..	..	..	75	.....	18,450	.....
Wildcats**	19	62	1	5	..	..	18	57	65	435	.....	.....
Others	..	..	..	..	..	..	..	..	...	.....	.....	283,100
Total	301	255	136	128	2	..	163	127	77,942[75]	83,305	7,665,800	7,716,700

*Large figures indicate oil in barrels, and small figures denote gas in millions of cubic feet.
**During 1928 tests on newly found domes (geophysical discoveries) were usually grouped under heading of wildcats. For 1929 each dome, whether productive or not, is carried separately.

Texas Recapitulation

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Texas Panhandle	550	343	363	189	133	96	54	58	1,024,074[1843]	63,315	31,190,050	24,306,150
East Central Texas	85	7	12	..	3	..	70	7	9432	.....	7,087,700	8,304,250
East Texas	119	94	5	11	79	47	35	36	2115[823]	344	.....	.....
West Texas	1026	1150	676	850	13	13	337	287	1,239,220[391]	3,739,490	134,552,000	120,614,450
West Central Texas	2066	2154	836	935	136	135	1094	1084	86,023[766]	112,098	19,999,150	20,144,250
North Texas	1979	1537	1160	925	9	14	810	598	117,897[44]	116,713	31,994,350	29,650,950
Southwest Texas	811	226	412	120	109	37	290	69	122,956[2991]	37,694	23,802,652	9,256,900
Total for Texas outside Gulf Coast	6636	5511	3464	3030	482	342	2690	2139	2,601,717[6858]	4,069,654	248,625,902	212,276,950
Texas Gulf Coast	1229	755	775	456	52	8	402	291	506,807[1897]	248,666	49,739,900	39,614,000
Grand Total	7865	6266	4239	3486	534	350	3092	2430	3,108,524[11755]	4,318,320	298,365,802	251,890,950

East Texas

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Angelina County	1	..	..	..	..	..	1	..	...	.....	.....	.....
Anderson County	3	2	..	1	..	..	3	1	...	83	.....	.....
Cass County	1	1	..	..	..	..	1	1	...	.....	.....	.....
Harrison County	23	24	..	3	22	19	1	2	...[600]	36[47]	.....	.....
Henderson County	..	2	..	..	..	..	..	2	...	.....	.....	.....
Marion County	1	..	1	..	..	..	..	..	15	.....	.....	.....
Panola County	65	34	..	3	56	28	9	3	...[219]	10[126]	.....	.....
Red River County	..	1	..	..	..	..	..	1	...	.....	.....	.....
Shelby County	4	1	..	1	..	..	4	..	...	154	.....	.....
Upshur County	1	..	..	..	..	..	1	..	...	.....	.....	.....
Wildcats	20	27	4	2	1	..	15	25	2100[4]	56	.....	.....
Total	119	94	5	11	79	47	35	36	2115[823]	344[178]	.....	.....

(a)—Production included immediately below in "others." (c)—Crane and Upton County production included together. (d)—Montague and Cooke Counties production included together. (e)—Included in Laredo district.
*—Large figures indicate oil in barrels, and small figures indicate gas in millions of cubic feet.

THE success of the first ATWOOD-Welded piping installation in 1908 . . . a fire system of 300-pounds pressure for the City of Baltimore . . . convinced ATWOOD engineers of the possibilities of the application of Welding to power plant pipe lines and those of every other description. Consequently were developed the renowned ATWOOD "Interlock" Neck, Headers for power plants, compressor stations and river crossings, Separators, Nozzles, Flanges, etc.

Experience enables ATWOOD engineers to design, *economically*, systems that will *perform* the service intended. *Safety* is assured by assigning to jobs only those welders . . . carefully trained by ourselves . . . who we are certain are most highly qualified. Each piece of work is carefully checked by our own inspectors (also by the customer's if desired) and is subject to a hydrostatic test two and one-half times the working pressure. Should a leak be found . . . it is not *caulked* . . . but is cut out—rewelded—and the piece retested.

A Few ATWOOD-Welded Piping Installations

Backus-Brooks Company, Ft. William, Ontario, Canada.
Bethlehem Steel Co., Sparrows Pt., Md.
Carnegie Steel Co., Edgar Thompson Works, Braddock, Penna.
Celanese Corp. of America, Cumberland, Md.
Cia Nacionale de Electricidad (Phoenix Utility Co.) Torreon, Mexico.
Davison Coke & Iron Co., Neville Island, Pittsburgh, Pa.
Henry L. Doherty Co., (Compressor Station), Sterlington, La.
Duquesne Light Co., (Colfax Station), Colfax, Penna.
Eastman Kodak Co., Rochester, N. Y.
Firestone Tire & Rubber Co., Akron, Ohio and Hamilton, Ontario.
Florida Power & Light Co., Fort Lauderdale and Sanford, Fla.
Ford Motor Company, Walkerville, Ont., Can.
Government Power House Saskatoon, Canada.
Gulf Refining Co., Port Arthur, Texas.
Jones & Laughlin Steel Co., Aliquippa, Penna.
Miss. River Fuel Corp., River Crossing Headers.
New England Fuel & Transportation Co., Everett, Mass.
Texas Power & Light Co., Trinidad, Texas.
Westinghouse Electric & Mfg Co., Sharon, Penn.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

PITTSBURGH VALVE, FOUNDRY & CONSTRUCTION CO.
PITTSBURGH ✓ PENNA.

DISTRICT OFFICES

New York City ..... 30 Church Street
Chicago, Ill. ..... 80 East Jackson Blvd.
Boston, Mass. ..... 185 Devonshire Street
Cleveland, Ohio ..... 858 Rockefeller Bldg.

REPRESENTATIVES

Detroit, Mich. ..... Garrett Burges, Inc., Woodbrook Bldg.
Houston, Texas ..... Maintenance Eng. Corp., 1400 Conti Street
Atlanta, Ga. ..... Moore-Broach Eng. Co., Forsyth Bldg.
Philadelphia, Penna. ..... R. J. Crozier Co., 10 South 18th Street
Los Angeles, Cal. ..... John G. Bell Co., 712 East Sixth Street

VALVES · WELDED PIPING · FITTINGS

North Texas

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Archer	610	523	273	263	..	..	337	260	14,786	14,341	6,599,950	7,402,200
Baylor	11	..	4	..	..	..	7	..	290	.....	.....	16,100
Burkburnett	33	63	24	37	..	..	9	26	457	778	3,326,700	3,992,500
Clay	59	21	29	8	2	2	28	11	1033	88	.....	85,050
Cooke	144	50	81	23	..	..	63	27	20,590	607	4,963,550	.... d
Collin	..	1	..	..	..	..	..	1	...	.....	.....	.....
Denton	1	2	..	..	..	..	1	2	...	.....	.....	.....
Electra	172	175	94	115	..	..	78	60	5200	5565	4,523,850	4,512,200
Foard	11	4	6	..	1	1	4	3	620[1]	.....[2]	.....	.....
Grayson	14	6	..	..	5	1	9	5	...[30]	.....[4]	.....	.....
Hardeman	..	1	..	..	..	..	..	1	...	.....	.....	.....
Haskell	17	6	5	1	..	..	12	5	290	50	.....	.....
K-M-A-Iowa Park	267	208	180	123	..	..	87	85	13,814	6385	1,942,200	1,260,050
Knox	2	2	..	..	..	..	2	2	...	.....	.....	.....
Montague	62	106	44	79	1	7	17	20	1778[10]	2690[26]	.....	4,254,550d
Wichita	37	..	17	..	..	..	20	..	463	.....	.....	.....
Wilbarger	539	368	403	207	..	3	136	89	58,576	82,209	10,386,550	8,002,850
Others	..	..	..	..	..	..	..	..	...	.....	251,550	125,450
Wildcats	..	..	..	..	..	..	..	..	...	.....	.....	.....
Total	1979	1537	1160	925	9	14	810	598	117,897[44]	116,713[33]	31,994,350	29,650,950

Texas Gulf Coast

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Allen Dome	4	3	..	2	..	..	4	1	.....	278	5,450	17,450
Anahuac	1	..	..	..	..	..	1	..	....	.....	.....	.....
Barbers Hill	78	6	67	2	..	..	11	4	84,150	4,600	4,486,900	322,950
Batson	39	40	30	32	..	..	9	8	503	704	505,550	498,550
Big Creek	31	23	22	18	..	..	9	5	41,075	10,560	1,443,900	834,250
Big Hill (Jefferson)	1	..	..	..	1	..	..	..	.....[20]	.....	.....	.....
Blue Ridge	50	108	40	81	..	..	10	27	20,665	57,677	1,206,850	2,302,300
Boling	26	22	4	7	..	1	22	14	2,945	1,897	609,200	828,400
Brenham	12	..	9	..	..	..	3	..	565	.....	77,700	.....
Clay Creek	24	2	12	2	3	..	9	..	9,955[17]	5,150	841,100	5,600
Clemens Dome	3	1	..	..	..	..	3	1	.....	.....	.....	.....
Damon Mound	5	1	..	1	..	..	5	..	.....	30	245,100	363,150
Davis Hill	1	2	..	..	..	..	1	2	.....	.....	.....	.....
Edna	5	2	..	..	2	2	3	..	.....[50]	.....	.....	.....
Esperson Dome	6	1	4	..	..	..	2	1	1,825	.....	48,450	.....
Fannett	11	3	9	1	..	..	2	2	12,300	135	296,000	4,000
Genoa	1	..	..	..	..	..	1	..	.....	.....	.....	.....
Hawkinsville	..	4	..	..	..	..	..	4	.....	.....	.....	.....
Goose Creek	36	32	22	24	..	..	14	8	1,490	2,025	2,140,400	2,551,950
Hankamer	2	..	2	..	..	..	..	..	1,200	.....	18,200	.....
High Island	15	15	10	9	..	..	5	6	5,763	3,970	447,400	170,450
Hockley	2	5	..	..	..	..	2	5	.....	.....	.....	.....
Hull	63	65	55	49	..	2	8	14	26,023	20,320	3,417,100	4,167,200
Humble	51	2	37	1	1	..	13	1	62,853[10]	1,100	3,043,200	683,150
La Belle (Jefferson)	1	..	..	..	..	..	1	..	.....	.....	.....	.....
Long Point	6	12	..	1	..	..	6	11	.....	50	.....	.....
Lost Lake	8	3	4	..	1	..	3	3	4,150[40]	.....	99,000	.....
Markham	3	1	..	..	..	..	3	1	.....	.....	139,550	109,200
Moores Field	3	4	1	2	..	..	2	2	800	1,500	.....	45,700
Moss Bluff	4	3	..	..	..	..	4	3	.....	.....	.....	.....
Mykawa	3	..	..	..	2	..	1	..	.....[75]	.....	.....	.....
Nash	4	17	1	8	..	..	3	9	900	8,744	193,050	490,750
Needville	1	..	..	..	..	..	1	..	.....	.....	.....	.....
North Dayton	6	4	3	2	1	..	2	2	3,750[15]	9,800	195,850	210,000
Orange	30	47	25	33	..	..	5	14	2,885	9,042	1,059,350	1,466,100
Pierce Junction	85	80	66	56	1	1	18	23	57,350	56,111	5,096,400	3,980,400
Port Neches	3	..	3	..	..	..	..	..	5,780	.....	243,450	.....
Raccoon Bend	99	12	81	4	5	1	13	7	30,836[20]	6,025	2,089,900	97,800
Refugio	119	2	69	1	35	..	15	1	26,385[1650]	160	1,992,950	56,600
Rockland	5	..	3	..	..	..	2	..	70	.....	5,150	.....
San Felipe	3	1	..	..	..	..	3	1	.....	.....	.....	.....
Saratoga	15	22	9	15	..	..	6	7	320	489	346,150	383,400
Sour Lake	16	30	14	20	..	..	2	10	925	797	983,300	1,235,350
South Dayton	1	3	..	2	..	..	1	1	.....	200	.....a	.....a
South Liberty	99	52	69	40	..	..	30	12	30,869	19,283	2,208,050	1,437,650
Spindle Top	73	51	55	32	..	..	18	19	36,345	20,709	9,923,100	14,021,300
Stratton Ridge	2	6	..	..	..	..	2	6	.....	.....	.....	.....
Sugar Land	44	6	43	5	..	1	1	..	32,475	5,810	3,950,550	389,750
West Columbia	6	6	5	5	..	..	1	1	1,630	1,570	2,381,600	2,946,200
Wildcats	123	58	1	1	..	..	122	57	25	25	.....	.....
Others	..	..	..	..	..	..	..	..	.....	.....	.....	947,800
Totals	1229	755	775	456	52	8	402	291	506,807[1807]	248,666	49,739,900	39,614,000

(a)—Production included immediately below in "others." (c)—Crane and Upton County production included together. (d)—Montague and Cooke Counties production included together. (e)—Included in Laredo district.
*—Large figures indicate oil in barrels, and small figures indicate gas in millions of cubic feet.

Have you heard this Lufkin Record?

1300 Lufkin Units in Operation

January 1, 1930

Six years ago the first Lufkin Pumping Unit was installed by the Humble Oil & Refining Company and is today operating efficiently.

Thirteen Hundred Lufkin Units have been installed since that time.

The Lufkin Unit of today represents the perfection of that original unit and embodies all of the improvements and refinements that time and experience in the field have proven important.

Lufkin originated the Trout Counter-balance and was the first to develop a geared unit to successfully replace the old standard rig.

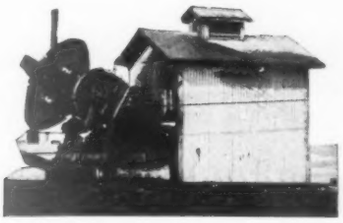
LUFKIN

Modern Production Equipment Manufactured at Lufkin, Texas by

THE LUFKIN FOUNDRY & MACHINE COMPANY

District Offices

TULSA, OKLA. HOUSTON, TEXAS



THE LUFKIN LINE

Los Angeles, California—Seminole, Okla., El Dorado, Ark., Odessa, Texas, New York, N. Y.

THE LUFKIN LINE

Texas Panhandle

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Armstrong	..	1	..	..	..	..	..	1	...	.....	.....	.....
Bailey	..	1	..	..	..	..	..	1	...	.....	.....	.....
Carson	76	20	50	4	20	15	6	..	13,248[877]	675[477]	2,839,000	2,472,350
Childress	2	..	..	..	..	..	2	..	...	.....	.....	.....
Cochran	1	..	..	..	..	..	1	..	...	.....	.....	.....
Cottle	4	..	..	..	..	..	4	..	...	.....	.....	.....
Dallam	..	2	..	..	..	..	..	2	...	.....	.....	.... a
Floyd	..	2	..	..	..	..	..	2	...	.....	.....	.....
Gray	264	188	222	131	22	28	20	29	990,787[1487]	54,345[874]	18,050,500	7,397,700
Hale	..	5	..	..	..	..	..	5	...	.....	.....	.....
Hall	2	..	..	..	..	..	2	..	...	.....	.....	.....
Hansford	..	1	..	..	..	..	..	1	...	.....	.....	.....
Hartley	3	2	..	..	2	1	1	1	12	.....	.....	.....
Hemphill	..	1	..	..	..	..	..	1	...	.....	.....	.....
Hutchinson	81	61	72	50	9	8	..	3	15,317[260]	5990[256]	9,479,450	13,794,950
Lamb	..	1	..	..	..	..	..	1	...	.....	.....	.....
Moore	26	8	15	2	8	5	3	1	4020[215]	2230[54]	.....	.....
Motley	2	1	..	..	..	..	2	1	...	.....	.....	.....
Oldham	..	1	..	..	..	..	..	1	...	.....	.....	.....
Potter	..	5	..	..	..	5	..	..	...	[79]	.....	.... a
Sherman	..	1	..	..	..	..	..	1	...	.....	.....	.....
Swisher	..	1	..	..	..	..	..	1	...	.....	.....	.....
Wheeler	89	39	4	2	72	34	13	3	690[2291]	75[1108]	305,500	338,600
Wildcats	..	2	..	..	..	..	..	2	...	.....	.....	.....
Others	..	..	..	..	..	..	..	..	...	.....	515,600	302,550
Total	550	343	363	189	133	96	54	58	1,024,074[1843]	63,315[2757]	31,190,050	24,306,150

West Texas

Concho	1	..	..	..	..	..	1	..	...	.....	.....	.....
Crane	40	30	39	29	..	..	..	1	12,517	12,265	17,246,000	c25,741,300
Crockett	3	8	3	8	..	..	..	..	450	2445	791,950	994,100
Culberson	1	..	..	..	..	..	1	..	...	.....	.....	.....
Fisher	9	3	5	2	..	..	4	1	1347	380	.....	.....
Glasscock	15	..	14	..	..	..	1	..	12,830	.....	.....	.....
Howard	205	125	199	118	..	2	7	5	79,282	81,548[3]	15,091,950	4,802,800
Irion	1	..	1	..	..	..	..	..	40	.....	.....	.....
Jones	46	37	32	32	..	..	14	5	6090	11,029	1,556,650	886,650
Loving	11	3	11	3	..	..	..	..	3107	160	.....	.....
Menard	1	..	..	..	..	..	1	..	...	.....	.....	.....
Montague	..	2	..	2	..	..	..	..	...	40	.....	.....
Mitchell-Scurry	5	5	4	4	..	..	1	1	300	360	959,450	1,106,550
Pecos	142	185	127	177	3	1	12	7	554,859[115]	1,263,436	41,317,050	22,111,400
Reagon	22	31	22	31	..	..	..	..	4170	5910	6,579,600	6,855,900
Runnels	..	2	..	1	..	..	..	1	...	350	.....	.....
Upton	13	10	13	8	..	..	..	2	4500	920	.....	 c
Ward	16	..	14	..	..	..	2	..	1777	.....	.....	.....
Winkler	174	437	159	410	1	7	14	20	550,088[148]	2,351,307[256]	50,222,150	57,501,650
Wildcats	320	272	33	25	9	3	278	244	7863[126]	12,340[2]	.....	.....
Others	..	..	..	..	..	..	..	..	...	614,100	787,200	.....
Total	1026	1150	676	850	13	13	337	287	1,239,220[391]	3,739,490[561]	134,552,000	120,614,450

West Central Texas

Brown	392	596	178	290	13	29	201	277	16,816	26,864[36]	3,262,750	9,093,490
Bruner	..	1	..	..	..	..	..	1	...	.....	.....	.....
Callahan	128	114	44	33	2	4	82	77	1822[2]	756[5]	1,366,900	1,363,450
Coleman	266	184	101	64	31	27	134	93	24,510[262]	5670[114]	1,943,150	978,600
Comanche	15	13	4	5	2	3	9	5	105[2]	160[6]	.....	.....
Eastland-Desdemona	170	201	54	72	19	30	97	99	4789[62]	22,056[106]	2,463,600	2,775,400
Erath	30	6	..	..	21	3	9	3	.....[104]	.....	.....	.....
Fisher	1	..	1	..	..	..	..	..	200	.....	.....	.....
Hood	2	..	..	..	..	..	2	..	...	.....	.....	.....
Jack	92	73	54	24	4	..	34	49	9865[39]	1910	1,023,800	248,780
Mills	1	..	..	..	..	..	1	..	...	.....	.....	.....
McCulloch	6	16	..	..	1	6	5	10	.....[7]	10	.....	.....
Palo Pinto	42	26	9	3	17	5	16	18	420[111]	90[15]	156,050	160,350
Parker	2	2	..	..	..	..	2	2	...	.....	.....	.....
San Saba	1	1	..	..	..	..	1	1	...	.....	.....	.....
Shackleford	313	268	139	177	5	8	169	83	11,708[56]	38,752[22]	4,183,450	3,434,200
Stephens	85	78	23	23	18	17	44	38	959[72]	2657[57]	2,318,550	2,750,650
Throckmorton	43	18	14	3	3	..	26	15	374[15]	120	240,300	343,900
Young	477	557	215	241	..	3	262	313	14,455[2]	13,063	2,741,000	3,062,550
Wildcats	..	..	..	..	..	..	..	..	...	.....	.....	.....
Others	..	..	..	..	..	..	..	..	...	.....	299,600	231,700
Total	2066	2154	836	935	136	135	1094	1084	86,023[766]	112,098[414]	19,999,150	20,144,250

(a)—Production included immediately below in "others." (c)—Crane and Upton County production included together. (d)—Montague and Cooke Counties production included together. (e)—Included in Laredo district.
*—Large figures indicate oil in barrels, and small figures indicate gas in millions of cubic feet.

East Central Texas

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Anderson County	2	..	..	..	1	..	1	..	...[50]	.....	.....	.....
Boggy Creek Field	17	..	6	..	2	..	9	..	1,827	.....	1,125,250	291,950
Burleson County	7	..	..	..	..	..	7	..	.....[55]	.....	.....	.....
Cedar Creek Dist., and Nigger Creek Corsicana-Powell.	1	..	1	..	..	..	..	..	75	.....	164,000	406,000
Currie	..	..	..	..	..	..	..	..	.....	.....	2,865,250	4,002,150
Falls	7	..	..	..	..	..	7	..	.....	.....	159,000	189,950
Fannin	2	1	..	..	..	..	2	1	.....	.....	.....	.....
Freestone	2	..	..	..	..	..	2	..	.....	.....	.....	.....
Grimes	1	..	..	..	..	..	1	..	.....	.....	.....	.....
Hill	7	..	2	..	..	..	5	..	30	.....	.....	.....
Leon	1	..	..	..	..	..	1	..	.....	.....	.....	.....
Limestone	13	4	..	..	..	..	13	4	.....	.....	.....	.....
McLennan	2	..	..	..	..	..	2	..	.....	.....	.....	.....
Mexia	2	..	..	..	..	..	2	..	.....	.....	2,000,900	2,565,800
Milam	8	..	..	..	..	..	8	..	.....	.....	.....	.....
Navarro	5	..	..	..	..	..	5	..	.....	.....	.....	.....
Richland	..	..	..	..	..	..	..	..	.....	.....	138,750	196,650
Robertson	1	..	..	..	..	..	1	..	.....	.....	.....	.....
Rusk	2	..	..	..	..	..	2	..	.....	.....	.....	.....
Smith	..	1	..	..	..	..	..	1	.....	.....	.....	.....
Van Zandt	5	..	3	..	..	..	2	..	7,500	.....	133,150	.....
Wortham	..	..	..	..	..	..	..	..	.....	.....	501,400	651,750
Wildcats	..	1	..	..	..	..	..	1	.....	.....	.....	.....
Totals	85	7	12	..	3	..	70	7	9,432	.....	7,087,700	8,304,250

Southwest Texas

	Completions		Oil Wells		Gas Wells		Failures		Initial Production*		Annual Production	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Aqua Dulce	1	..	..	..	1	..	..	..	...[50]	.....	.....	.....
Aransas	1	..	..	..	..	..	1	..	...	.....	.....	.....
Atascosa	1	..	..	..	..	..	1	..	...	.....	.....	.....
Bastrop	5	..	..	..	..	..	5	..	...	.....	.....	.....
Bee	5	1	..	..	1	..	4	1	...[20]	.....	.....	.....
Bexar	22	..	11	..	..	..	11	..	62	.....	.....	.....
Blanco	1	..	..	..	..	..	1	..	...	.....	.....	.....
Brooks	8	..	..	..	2	..	6	..	...[65]	.....	.....	.....
Caldwell	16	20	8	11	..	..	8	9	407	4565	.....	.....
Cedar Creek	14	..	11	..	..	..	3	..	3925	.....	.....	.....
Cole	5	..	..	..	4	..	1	..	...[140]	.....	.....	.....
Dale Field	1	12	..	10	..	..	1	2	...	918	183,400	365,100
Darst Creek Field	9	..	8	..	..	..	1	..	4750	.....	.....	.....
Duval	98	29	55	10	29	13	14	6	8618[304]	1750[300]	.....	.....
Edwards	1	..	..	..	..	..	1	..	...	.....	.....	.....
Frio	1	..	..	..	..	..	1	..	...	.....	.....	.....
Goliad	2	..	..	..	..	..	2	..	...	.....	.....	.....
Gonzales	5	..	..	..	..	..	5	..	...	.....	.....	.....
Guadalupe	7	1	..	..	..	..	6	..	2500	.....	.....	.....
Jim Hogg	36	23	15	13	4	1	17	9	950[100]	940[45]	.....	.....
Hidalgo	2	..	..	..	..	..	2	..	...	.....	.....	.....
Karnes	3	..	..	..	..	..	3	..	...	.....	.....	.....
Kendall	1	..	..	..	..	..	1	..	...	.....	.....	.....
Kimble	4	..	..	..	..	..	4	..	...	.....	.....	.....
Kleberg	2	..	..	..	..	..	2	..	...	.....	.....	.....
Laredo District	..	17	..	9	..	4	..	4	...	5490[78]	3,940,850	2,791,500
Live Oak	6	1	..	..	2	..	4	1	...[80]	.....[40]	.....	.....
La Salle	1	..	..	..	..	..	1	..	...	.....	.....	.....
Luling	..	1	..	1	..	..	..	..	...	25	4,260,000	4,911,050
Lytton Springs	2	..	..	..	..	..	2	..	...	.....	354,300	456,850
Maverick	2	1	..	..	..	..	2	1	...	.....	.....	.....
Medina	13	..	..	..	2	..	11	..	...[5]	.....	.....	.....
Menard	1	..	..	..	..	..	1	..	...	.....	.....	.....
Nueces	9	..	..	..	8	..	1	..	...[350]	.....[80]	.....	.....
San Patricia	5	..	..	..	2	..	3	..	...[55]	.....	.....	.....
Salt Flat	263	15	236	14	3	..	24	1	91,952[20]	10,481	13,667,000	215,300
Somerset	..	..	..	..	..	..	..	..	...	.....	470,300	266,000
Starr	2	1	1	..	..	1	1	..	30[5]	.....	.....	.....
Travis	2	..	..	..	..	..	2	..	...	.....	.....	.....
Uvalde	1	1	..	..	1	..	..	1	...[20]	.....	.....	.....
Val Verde	3	2	..	..	..	..	3	2	...	.....	.....	.....
Webb	94	56	30	39	34	11	30	6	4142[2,6]	11,310[278]	.....	 c
Jim Wells	1	..	..	..	..	..	1	..	...	.....	.....	.....
Zapata	59	10	29	4	11	3	19	3	3348[143]	660[45]	.....	 c
Zavalla	10	..	..	..	2	..	8	..	...[48]	.....	.....	.....
Wildcats	86	36	7	9	3	4	76	23	2272[68]	1555[18]	.....	.....
Others	..	..	..	..	..	..	..	..	...	.....	743,400	251,000
Total	811	226	412	120	109	37	290	69	122,956[293]	37,694[275]	23,802,652	9,256,900

(a)—Production included immediately below in "others." (c)—Crane and Upton County production included together. (d)—Montague and Cooke Counties production included together. (e)—Included in Laredo district.
*—Large figures indicate oil in barrels, and small figures indicate gas in millions of cubic feet.

New Fields Give Kansas Upturn in Production During 1929

(Continued from page 80)

Hillsboro pool in Marion County, where Viola lime production mas found in January. Empire Oil & Refining Company discovered the deeper producing horizon with Suderman 1, SEc NE Section 12-19-2e. The recovery of the well was 500 barrels daily at 2837 feet.

Located 50 miles northeast of Valley Center, then the center of attraction, this field caused the central Kansas campaign to spread out into new and wider areas. Its development was rapid, due to the fact that most of the offsets were already drilling or producing from an upper chat horizon. Only a few wells found the Viola lime productive and it proved very small as a result.

In Butler County, Lario Oil & Gas Company's Galancy 1, SWc Section 10-26-3e, six miles east of Greenmich, produced 430 barrels daily on the pump at 2700 feet. Another new pool in this county was opened by Aladdin Petroleum Corporation's Baysinger 1, NEc SW Section 24-27-3e, which produced 250 barrels on the pump. The Butler County pools, however, were proving themselves small as the year closed.

A completion that created interest in Harvey County was Shell Petroleum Corporation's Haury 1-B, NE SW SE Section 11-23-2w, near Halstead where some gas has been developed. This well came in for about 20,000,000 feet of gas and on being deepened commenced to spray about 160 barrels of oil daily. It was the county's first gas well.

For a time Saline County was in the limelight through Dixie Oil Company's Muir 1, SE NW SW Section 6-15-2w, which showed oil in the Viola lime but its chances of production were ruined by deeper drilling that encountered water.

A well that showed even better than the above well was Dixie Oil Company and Amerada Petroleum Corporation's Oldson 1, NW NE Section 10-16-3w. It slopped over from the Viola lime at 3308 feet and looked good for 20 barrels. In efforts to increase its output it encountered water with deepening and after drilling to the Wilcox sand was abandoned.

Western Kansas Featured by Wildcats

The big blocking and leasing campaign in Western Kansas during the past two and three years resulted in many tests being drilled. Probably due to more thorough knowledge of geological conditions through the study of the region with plane-tables, torsion balance, seismograph and core drill machines, the wildcat campaign was the most successful ever conducted in Kansas. None of the new strikes, however, have resulted in any concentrated development. There have been no large wells and most of them have been on large blocks, but their importance is not to be underestimated.

Ellis County played a very impor-

(Continued on page 162)

Oklahoma

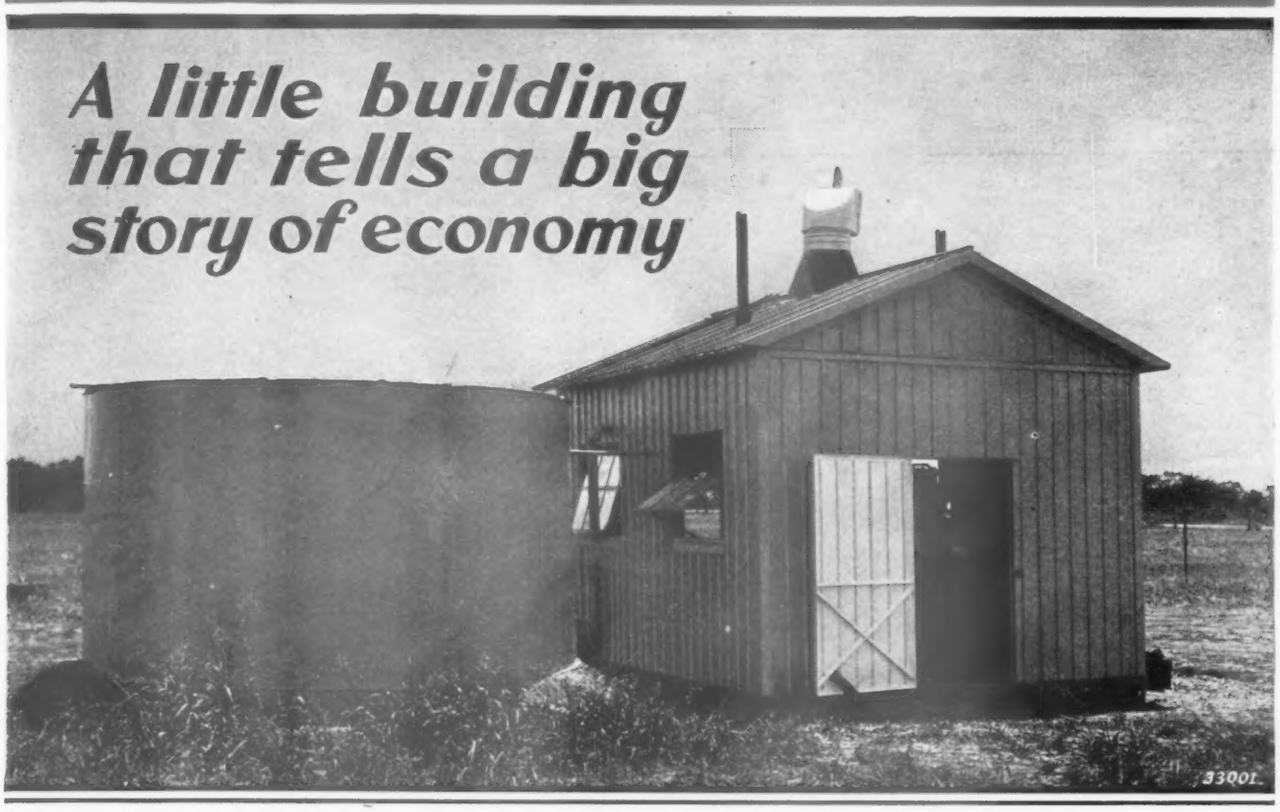
	Completions		Producers		Gas Wells		Failures		Initial Prod.*	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Atoka	1	..	..	..	..	..	1	..	....	....
Beaver	..	1	..	..	..	..	..	1	....	....
Beckham	12	15	..	..	6	9	6	6	107	....
Blaine	1	..	..	..	..	..	1	..	....	....
Bryan	..	2	..	..	..	..	..	2	....	....
Caddo	13	18	7	10	..	1	6	7	1,241	485
Canadian	1	2	..	..	..	..	1	2	....	....
Carter	86	103	58	85	6	3	22	15	6,048[144]	14,933
Cherokee	1	1	..	..	..	..	1	1	....	....
Cimarron	..	6	..	..	..	..	..	6	....	....
Cleveland	1	2	..	..	..	..	1	2	....	....
Coal	6	3	..	1	..	..	6	2	....	10
Comanche	5	7	..	1	..	..	5	6	....	7
Cotton	77	23	46	9	3	3	28	11	4,699[9]	398
Creek	343	321	172	141	38	39	133	141	13,967[105]	20,828
Custer	1	..	..	..	..	..	1	..	....	....
Dewey	2	..	..	..	..	..	2	..	....	....
Ellis	..	1	..	..	..	..	..	1	....	....
Garfield	3	14	..	4	2	1	1	9	[11]	88
Garvin	11	14	3	5	..	1	8	8	85	264
Grady	33	140	3	14	21	95	9	31	215[230]	1,375
Grant	16	17	3	6	3	4	10	7	1,100[28]	1,137
Greer	..	1	..	..	..	..	..	1	....	....
Harmon	1	..	..	..	..	..	1	..	....	....
Harper	2	..	..	..	..	..	2	..	....	....
Haskell	2	..	1	..	2	..	..	..	10[2]	....
Hughes	59	30	20	10	18	5	21	15	5,692[281]	1,222
Jefferson	28	64	15	40	1	3	12	21	1,315[51]	1,620
Johnson	..	2	..	..	..	..	..	2	....	....
Kay	64	143	10	17	21	51	33	75	2,130[28]	3,571
Kingfisher	1	1	..	..	..	..	1	1	....	....
Kiowa	64	7	11	1	1	..	52	6	142[1]	30
Latimer	7	..	..	..	6	..	1	..	40	....
Le Fore	8	..	..	..	4	..	4	..	[8]	....
Lincoln	18	11	2	6	4	1	12	4	2,010[30]	2,237
Logan	40	41	26	20	3	5	11	16	45,421[27]	17,428
Love	..	1	..	..	..	..	..	1	....	....
Major	1	1	..	..	..	..	1	1	....	....
Marshall	12	14	7	9	..	..	5	5	406	251
Mayes	..	2	..	..	..	..	..	2	....	....
McClain	4	..	..	..	..	..	4	..	....	....
McIntosh	9	2	..	..	1	..	8	2	....	....
Mitchell	..	2	..	1	..	..	..	1	....	15
Murray	1	..	..	..	..	..	1	..	....	....
Muskogee	158	250	45	77	34	29	79	144	2,051[59]	4,693
Noble	7	7	..	..	3	1	4	6	[35]	....
Okfuskee	154	98	82	58	18	12	54	28	10,439[283]	8,671
Oklahoma	33	..	26	..	6	..	1	..	173,564[424]	....
Okmulgee	155	249	68	90	21	50	66	110	2,642[68]	1,799
Osage	280	322	153	209	38	36	89	77	16,990[92]	52,044
Pawnee	75	50	42	20	7	9	26	21	3,923[15]	315
Payne	44	20	26	8	4	2	14	10	8,083[23]	515
Pittsburg	6	6	..	..	4	6	2	..	7	....
Pontotoc	87	135	61	78	7	15	19	42	13,708[32]	20,936
Pottawatomie	493	339	380	281	11	7	102	51	281,051[201]	319,910
Rogers	..	5	..	..	..	..	..	5	....	....
Seminole	646	617	454	468	39	16	153	133	431,762[1164]	539,702
Sequoyah	3	5	..	..	2	2	1	3	[3]	....
Stephens	192	268	97	153	14	18	81	97	7,370[189]	21,004
Texas	1	4	..	..	..	..	1	4	....	....
Tillman	6	4	..	..	..	..	6	4	....	....
Tulsa	25	91	4	36	5	13	16	42	88[14]	2,503
Wagoner	83	94	14	14	21	14	48	66	372[67]	290
Woods	2	..	..	..	..	..	2	..	....	....
Woodward	1	..	..	..	..	..	1	..	....	....
Total	3387	3576	1836	1872	374	450	1177	1254	1,036,524[1690]	1,038,272

Oklahoma Production for 1928 and 1929 by Fields

Fields—	1929	1928
Allen (b)	8,989,550	4,204,600
Asher	1,385,500	.....
Blackwell	1,381,900	1,290,600
Bowlegs (a)	12,149,150	23,997,750
N. Braman	1,349,700	1,064,400
S. Braman	.....	582,800
Bristow-Slick	7,210,700	8,197,800
Burbank	7,392,200	11,967,350
Carr City	2,178,800	.....
Cromwell	2,882,700	3,460,300
Cushing	6,740,900	7,513,900
Davenport	529,800	729,550
Duncan District	2,705,200	2,640,800
Earlsboro	25,599,400	33,396,250
Fox	511,550	611,750
Garber	1,983,950	3,069,500
Graham	1,550,350	1,994,800
Healdton	4,735,000	5,120,350
Hewitt	2,956,300	3,344,450
Hubbard	679,850	989,600
Little River (a)	28,742,550	24,804,450
Logan County	5,564,700	.....
Lyons-Deaner	2,879,950	2,197,700
Maud	7,420,750	359,450
Mission	7,407,850	.....
N. Okmulgee	4,737,200	5,528,350
Oklahoma City	8,549,990	52,200
Osage (Outside Burbank)	9,469,650	10,239,100
Papoose	1,214,210	1,625,800
Pearson (b)	542,650	530,150
Sasakwa	1,070,800	.....
Scholem-Alechem	4,791,100	5,167,800
Searight (a)	3,886,550	5,217,650
Seminole	11,902,500	18,435,800
E. Seminole	1,082,350	.....
St. Louis (b)	30,378,400	18,859,400
Stroud (a)	.....	196,850
Thomas	308,500	487,800
Tonkawa	3,556,950	4,912,600
Watchorn (d)	.....	163,250
Yale-Jennings	2,602,610	3,025,300
Wewoka	1,718,700	2,437,550
Others	20,515,550	24,709,900
Total	251,256,010	243,127,650

(a) Included in Seminole in 1929.
(b) Prior to July, 1928, included in others.
(c) Prior to Dec., 1928, included in Earlsboro.
(d) Last half of 1928 included in others.

A little building that tells a big story of economy



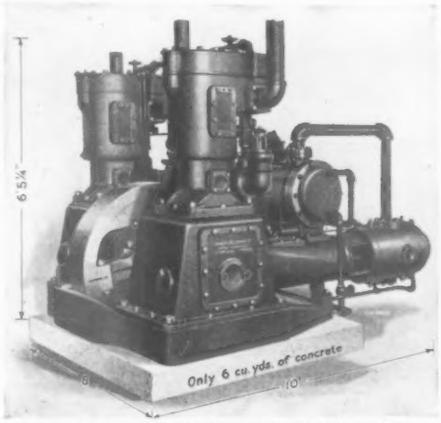
OUT on the prairie of West Texas stands the building pictured above. As may be seen, it is a small structure that cost little and required only a short time to erect.

The building is a gas booster station. It houses a Type "XOG" 90-hp., gas-engine-driven compressor. Most 90-hp. compressors could not be installed in a building of this size, but the "XOG" was designed to conserve space and to save time and money on transportation and installation.

This compressor arrived at the railroad station completely set up except for piping, lubricator, etc. It was loaded on a truck, as it stood, and hauled to its point of use, where a foundation had been prepared for it. This foundation required only 6 cubic yards of concrete—another saving point of the "XOG."

It will not be necessary to carry a large stock of spare parts for this machine, because all power-end parts are interchangeable, even to the valves and valve cages.

We have made possible these noteworthy savings by designing the "XOG" with vertical power cylinders and horizontal compressing cylinders. In reducing floor space and foundation requirements, we have not sacrificed simplicity and accessibility. All necessary adjustments and repairs can be made conveniently.



XOG Compressor, showing principal dimensions

We have produced a machine of nice running balance. Power-cylinder explosion forces are carried directly downward to a cast-steel subbase. For temporary service, the unit can be mounted on timber sills.

The "XOG" is a duplex machine, with a 4-cycle power end. The compressing end is built to take various cylinder combinations, adapting the unit to the entire range of pressure conditions encountered in gas work. The compressor cylinders are the same that are supplied for our Type "XOB," belt-driven units that have earned a reputation for efficient oil-field service in many parts of the world.

INGERSOLL-RAND CO. - 11 Broadway - New York City

Branches or distributors in principal cities the world over

For Canada Refer—Canadian Ingersoll-Rand Co., Limited, 10 Phillips Square, Montreal, Quebec

979-C

Ingersoll-Rand

Rocky Mountain Production Summary for 1929

WYOMING—	
Fields—	
Salt Creek	11,768,600
Grass Creek	811,900
Elk Basin	281,400
Big Muddy	897,700
Lost Soldier	1,290,950
Rock Creek	858,350
Lance Creek	101,250
Oregon Basin	1,457,680
La Barge	667,060
Others	1,487,850
Total Wyoming	19,274,350
MONTANA—	
Cat Creek	510,850
Sun Burst	2,390,250
Pondera	1,005,850
Others	23,700
Total Montana	3,928,350
COLORADO—	
Moffats	445,600
Ft. Collins	829,400
Florence	345,100
Others	751,500
Total Colorado	2,372,500
NEW MEXICO—	
Table Mesa	36,350
Artesia	328,700
Hog Back	121,900
Rattlesnake	406,800
Miscellaneous	375,050
Others	140,500
Total New Mexico	1,773,300
Total Mountain States	27,348,500

Mountain States, 1929

	Completions	Oil Wells	Gas Wells	Failures	Initial Prod.	Annual Prod.
Montana	224	109	34	81	74,000	3,196,000
Wyoming	135	74	17	44	23,000	19,229,000
Colorado	97	17	18	62	2,200	2,297,000
New Mexico	133	69	14	50	18,000	1,688,000
Totals	589	269	83	237	117,200	26,410,000

Kansas

	Completions		Producers		Gas Wells		Failures		Initial Prod.*	
	1929	1928	1929	1928	1929	1928	1929	1928	1929	1928
Barber	6	4	2	..	..	1	4	3	37	....
Barton	1	3	..	..	..	..	1	3	....	....
Butler	119	123	70	70	..	..	49	53	8,602	16,034
Chase	7	3	5	..	..	1	2	2	180	....
Chautauqua	6	11	4	3	..	4	2	4	125	70
Cloud	1	..	..	..	..	..	1	..	....	....
Clark	..	2	..	..	..	1	..	1	....	....
Clay	..	1	..	1	..	..	..	..	....	20
Coffey	15	12	4	3	3	2	8	7	80[6]	70
Cowley	71	113	16	20	15	32	40	61	4,545[24]	1,276
Dickinson	2	9	..	..	..	..	2	9	....	....
Douglas	1	..	..	..	..	..	1	..	....	....
Edwards	3	..	2	..	..	..	1	..	80	....
Elk	31	75	14	37	..	10	17	28	992	3,467
Ellis	25	5	16	..	..	..	9	5	2,585	....
Ellsworth	..	2	..	..	..	..	..	2	....	....
Franklin	1	2	..	..	..	1	1	1	....	....
Geary	..	1	..	..	..	..	..	1	....	....
Greenwood	159	214	87	110	3	13	69	91	13,343[8]	14,439
Harper	5	..	..	..	..	..	5	..	....	....
Harvey	18	1	1	..	2	1	16	..	90[31]	....
Jackson	1	1	..	..	..	..	1	1	....	....
Jefferson	1	..	..	..	..	..	1	..	....	....
Kingman	3	..	..	..	..	..	3	..	....	....
Kiowa	1	..	..	..	..	..	1	..	....	....
Labette	1	4	..	..	..	..	1	4	....	....
Logan	..	1	..	..	..	..	..	1	....	....
Lyon	12	7	2	..	..	..	10	7	168	....
Marion	23	90	9	43	1	..	13	47	1,585	4,615
Marshall	1	1	..	..	..	..	1	1	....	....
McPherson	28	17	16	2	1	6	15	9	9,610[30]	380
Mitchell	1	..	..	..	..	..	1	..	....	....
Montgomery	..	6	..	1	..	1	..	4	200	200
Morris	6	17	..	1	3	2	3	14	2 (gas)	30
Nemaha	1	..	..	..	..	..	1	..	....	....
Ness	1	..	1	..	..	..	..	..	185	....
Osage	5	..	..	..	..	..	5	..	....	....
Osborne	2	3	..	..	..	..	2	3	....	....
Ottawa	1	..	..	..	..	..	1	..	....	....
Phillips	2	..	..	..	..	..	2	..	....	....
Pottawatomie	1	1	..	..	..	..	1	1	....	....
Reno	4	2	..	..	..	..	4	2	....	....
Rice	2	..	..	..	..	..	2	..	....	....
Riley	1	1	..	..	..	..	1	1	....	....
Rooks	3	12	..	5	..	..	3	7	....	460
Rush	8	..	..	1	..	..	7	12	....	....
Russell	30	32	21	23	..	..	9	9	2,500	5,713
Saline	3	2	..	..	..	..	3	2	....	....
Sedgwick	234	5	149	3	..	..	84	2	89,849	5,000
Seward	..	3	..	..	..	1	..	2	....	....
Shawnee	1	..	..	..	..	..	1	..	....	....
Sherman	1	..	..	..	..	..	1	..	....	....
Smith	1	..	..	..	..	..	1	..	....	....
Stevens	2	..	..	1	..	..	1	..	8	....
Stafford	..	1	..	..	..	..	..	1	....	....
Sumner	27	146	12	100	3	11	12	35	2,815[7]	43,120
Wabunsee	2	1	..	..	..	..	2	1	....	....
Wilson	1	3	..	1	..	..	1	2	....	35
Woodson	11	18	5	4	..	..	6	14	245	95
Wildsats	..	..	..	..	..	..	..	..	....	....
Total	893	956	437	427	31	87	428	442	137,579[172]	95,024

(Continued from page 160)

tant part in the activities of Western Kansas. Phillips Petroleum Company has been usually successful here and is the holder of large acreage. This company's Sophus Johnson 1, SW NE Section 9-13-19w, late in June, came in for about 600 barrels from the Oswald lime at 3595 feet.

Danciger Oil & Refining Company's Schemidler 1, NWc Section 20-12-17w, two miles south of Phillips Petroleum Company's Shutts 1, completed in November, 1928, and which started active drilling in the county when it produced 125 barrels, made a good producer. Phillips Petroleum Company has made several important strikes on its big block of acreage surrounding the Shutts well and the area looks promising for another Fairport pool.

Burger et al's Hadley 1, SWc NW Section 20-11-17w, produced 130 barrels the first 24 hours on the pump from sand at 3420-40 feet. Barnsdall Corporation's Johnson 1, NE SW Section 9-13-19w, west of production, found the Gorham sand at 3598-3602 feet in September and swabbed 154 barrels in 12 hours.

Trego County Has Important Discovery

A most important well was Central Commercial Oil Company's Ellis-King 1, NE SW NE Section 20-13-21w, a rank wildcat in Trego County. This well pushed the western producing boundary of Kansas further toward the Colorado line. It pumped 75 barrels per day from 3960-72 feet. The producing horizon was a true sand instead of the lime and chat formations producing in other spots in far west Kansas.

Another interesting wildcat producer was British-American Oil Company's McCarty 1, SEc Section 31-25-17w, near Kinsley, in Edwards County. This well came in for 10,000,000 feet of gas and later increased to 14,000,000 feet with 865 pounds of rock pressure at 4545 feet, the deepest producer in Western Kansas. It was also spraying some oil.

Barnsdall Corporation's Lauck 1, C SW Section 35-18-21w, Ness County, drew attention for some time but after looking like a good producer failed to make an oil well. After cementing casing on the top of a chat formation at 4229 feet it commenced flowing 10 barrels of oil and water per hour, but deeper drilling brought in additional water.

Graham County in far Northwestern Kansas had an excellent showing but it amounted to nothing more. It was in the rank wildcat of Gulf Coast Oil Company's on the St. John farm, C SE Section 27-8-25w, which cored a saturated oil sand from 4071-4075 feet.

Russell County saw the discovery of several new pools. Prairie Oil & Gas Company and T. B. Slick started activity near Hoisington, where their Lucinda Sellans 1, SW NE Section 36-15-13w, pumped 305 barrels initial at 3355 feet. Wells immediately adjoining it have been good producers.

Kansas Production for 1929 and 1928 by Fields

Fields—	1929	1928
Augusta-Fox Bush	1,087,550	1,367,050
Churchill	2,412,950	3,801,400
Eldorado-Towanda	4,651,600	4,945,600
Florence-Covert	353,450	433,700
Greenwood County	7,903,700	10,303,850
Oxford	1,703,550	4,082,250
Peabody-Ebling	1,127,000	1,264,850
Rainbow Bend	387,800	579,950
Russell	1,182,950	1,259,850
Sedgwick County*	8,723,200	61,500
Others	11,493,470	10,146,850
Total	41,027,220	38,246,850

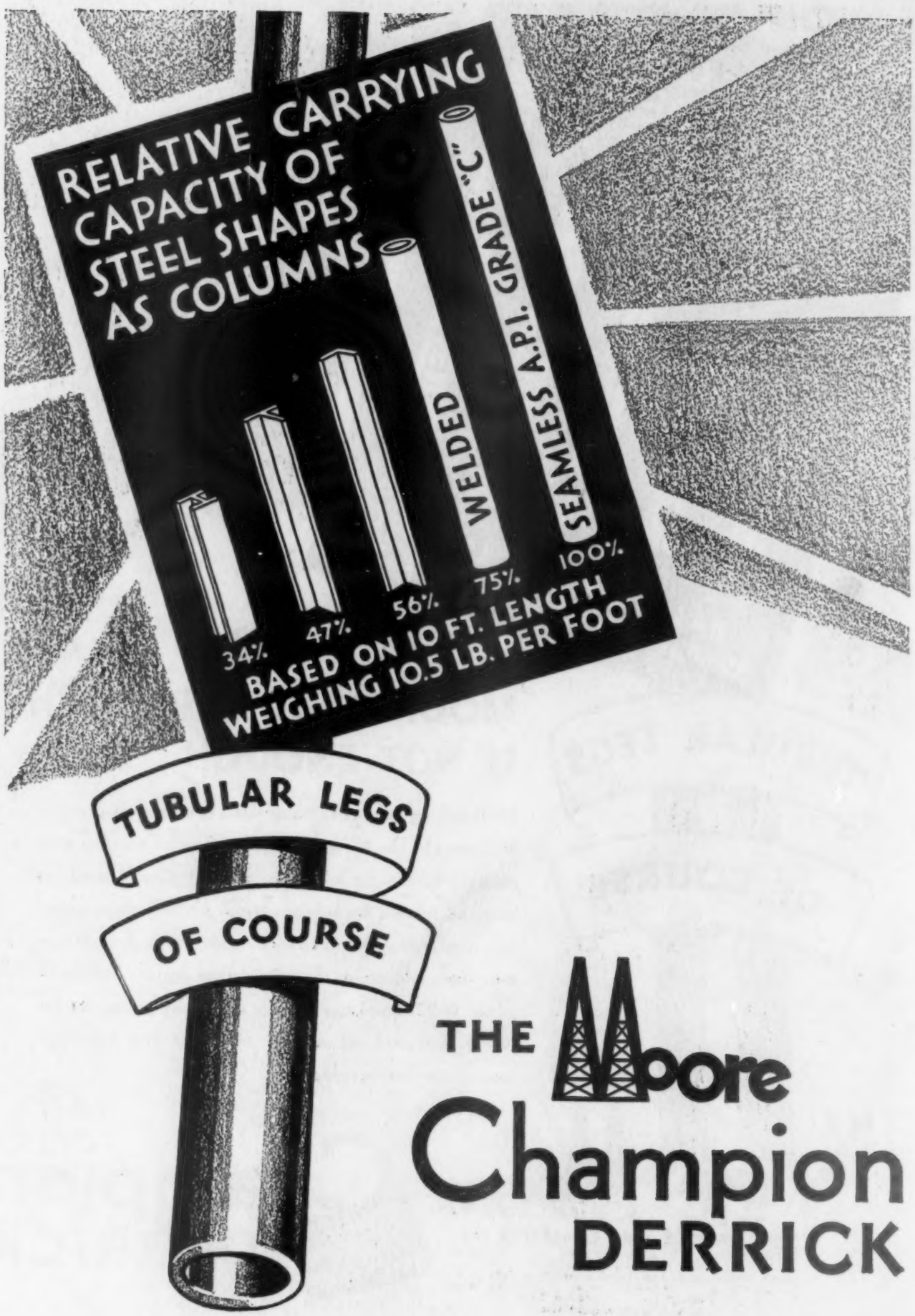
less THAN MOORE LEG STRENGTH IS NOT ENOUGH . . . .

1930 drilling requirements demand the greatest possible leg strength. The Moore Champion Derrick supplies such strength by the use of highly efficient tubular steel leg sections. Moore leg sections are of 40-50 carbon, seamless steel pipe, galvanized inside and outside. For twenty-two years, Moore has championed the use of tubular legs. In the 1930 Champion Derrick are incorporated the improvements and refinements which this long period of experience has developed.

THE Moore Champion DERRICK

Moore ALL STEEL RIG EQUIPMENT

LEE C. MOORE AND COMPANY, INC.
PITTSBURGH Established 1907 TULSA
New York Offices
Oilfield Equipment Co., 30 Church Street, New York, N. Y.
DALLAS, TEXAS WICHITA, KANSAS CASPER, WYO.
SHREVEPORT, LA. HOUSTON, TEXAS
Stocks in All Principal Fields



THE Moore Champion DERRICK

Iraq Directors to Select Pipe Line Route

LONDON.—A meeting of the board of directors of Iraq Petroleum Company (formerly Turkish Petroleum Company) will be held here on January 30 to consider reports of surveys made recently by a commission of pipe line engineers for the purpose of determining the most feasible route for the construction of a pipe line to serve the new fields at Baba Gurgur and elsewhere in the vicinity of Kirkuk, in the Kingdom of Iraq. The surveying party, which recently completed its labors and dispersed to Canada, England and France, was headed by Dan O. Towl, vice-president of the Andian National Corporation, of Toronto, who is credited in large measure with the success of the Andian pipe line paralleling the Magdalena River in Colombia, longest trunk line in South America. He was accompanied by H. J. Rahlves, a marine engineer, and assisted by P. G. Douglas, senior engineer for the Anglo-Persian Oil Company, J. Parmentier, consulting engineer representing the *Compagnie Francaise des Petroles,* and H. M. Hayne, chief engineer of the Andian National Corporation.

Showing alternate probable routes of Iraq pipe line

Production Held in Check

It is generally known that the Iraq concession, which was granted by the Iraq Government in March, 1925, and covers 24 plots of eight square miles each, includes some 10 or 12 productive wells, of which two or three or more are said to be capable of producing around 100,000 barrels each, per day. All of these gushers are shut in, except for fuel requirements, pending the construction of pipe line and shipping facilities not yet commenced. Meanwhile, drilling is being continued, with nine rigs in operation, in a comprehensive campaign of exploration. Production is found in lime rock, at depths ranging from 1500 to 3500 feet below the surface. Formations encountered include gyp, anhydrite, and salt beds hundreds of feet in thickness.

The Kingdom of Iraq includes an area as big as the state of California, and is believed by many to be equally rich in petroleum reserves. The region is marked by countless numbers of active and quiescent seepages of oil and gas, which have supplied asphalt and bitumen for use in caulking boats and in lieu of mortar for building operations throughout the last 5000 years or more.

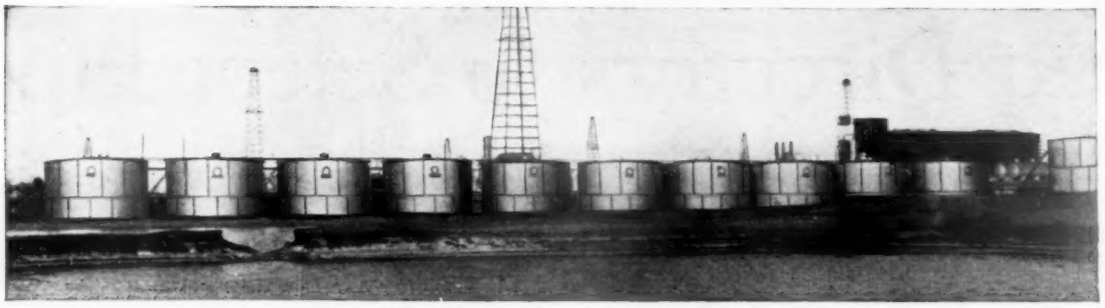
The capital of the Iraq Petroleum Company was increased by $5,000,000 during 1929, which sum probably will be expended in development work and in the commencement of operations for the construction of a pipe line outlet during the current year. An article published in The *Lamp* of December, 1923, contains the following paragraphs relating to this project:

"Before Iraq can become an oil producing country several problems must be solved. . . . . Then if oil is found in paying quantities the transportation problem looms large. The prospective fields are at least 500 miles from either sea, the Mediterranean or the Persian Gulf. In one case a pipe line would go through French mandate territory; in the other it would follow the Tigris-Euphrates valleys. In either case it would pass through the territory of uncivilized tribes handy with a rifle and quick to appreciate the value of a little crude.

"These problems in the progress of events, will be worked out in time. Then the long and laborious work of geological study and wildcat drilling will go forward and eventually the oil resources of Iraq will be tested."

The Iraq Petroleum Company is owned by British, French, and American interests in the proportion of 47½ per cent to the British and 23¾ per cent each to the French and Americans. The Anglo-Persian Oil Company, the Royal Dutch Shell Group, the *Compagnie Francaise des Petroles,* and the Near East Development Corporation each own 23¾ per cent of its capital stock. C. S. Gulbenkian, an individual, owns five per cent. The Near East Development Corporation is a pool in which are consolidated the interests of the American participants, who include the Pan American Petroleum & Transport Corporation (Standard Oil Company, Indiana), The Gulf Oil Corporation, the Atlantic Refining Company, and the Standard Oil Companies of New York and New Jersey.

The directorate, which will make the momentous decision regarding the route of the new pipe line which will require some two or more years to build and will cost in the neighborhood of $7,000,000, is presided over by Sir John Cadman, K. C. M. G., Chairman of the Anglo-Persian Oil Company, who was chairman of the Petroleum Executive, connecting and controlling link between the British War Office and the British oil industry during the World War. Other members include Sir Henri Deterding, K. B. E., Managing Director of Bataafsche Petroleum Maatschappij and director of Shell subsidiaries generally, A. Agnew, C. B. E., likewise a director of important Shell subsidiaries, Sir John B. Lloyd, a director of the Anglo-Persian Oil Company, Col. E. Mercier and R. Cayrol, president and director, respectively of *Compagnie Francaise des Petroles,* and H. G. Seidel, of Paris, and Montagu Piesse, solicitor, of London, representing the American interests consolidated in the Near East Development Corporation.



BUILT *for* YEARS *of* ECONOMICAL SERVICE

COLUMBIAN BOLTED TANKS

The finest quality copper bearing, blue annealed steel the market affords . . . . 80,000 lbs. tensile strength tested bolts . . . special cloth inserted rubber packing . . . . accessories of the highest standards. . . .

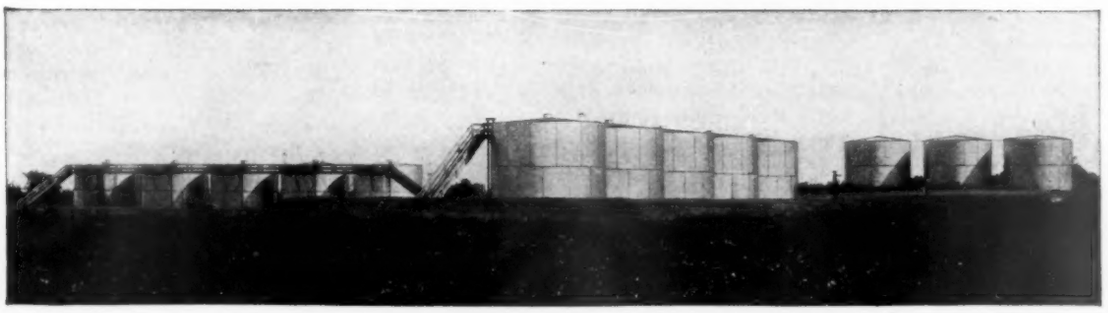
These elements, plus precision of manufacture make the COLUMBIAN BOLTED TANK (custom built or A.P.I. specifications throughout) the most dependable storage offered to the petroleum industry. Many COLUMBIAN tanks, erected fifteen years ago, are still in active service. More than 100,000 have been sold in the oil fields of the world.

Our unexcelled engineering service is available for your storage problems. Prompt delivery from conveniently located stocks in all active fields or immediate shipment from factory.

COLUMBIAN STEEL TANK COMPANY

EST'D 1894 — TANKS FOR THE WORLD

1405-1625 WEST 12TH STREET KANSAS CITY, MISSOURI



FOR SAFETY SPECIFY COLUMBIAN

Markets--Production--Crude Prices

H. J. STRUTH, *Staff Economist, Houston, Texas*

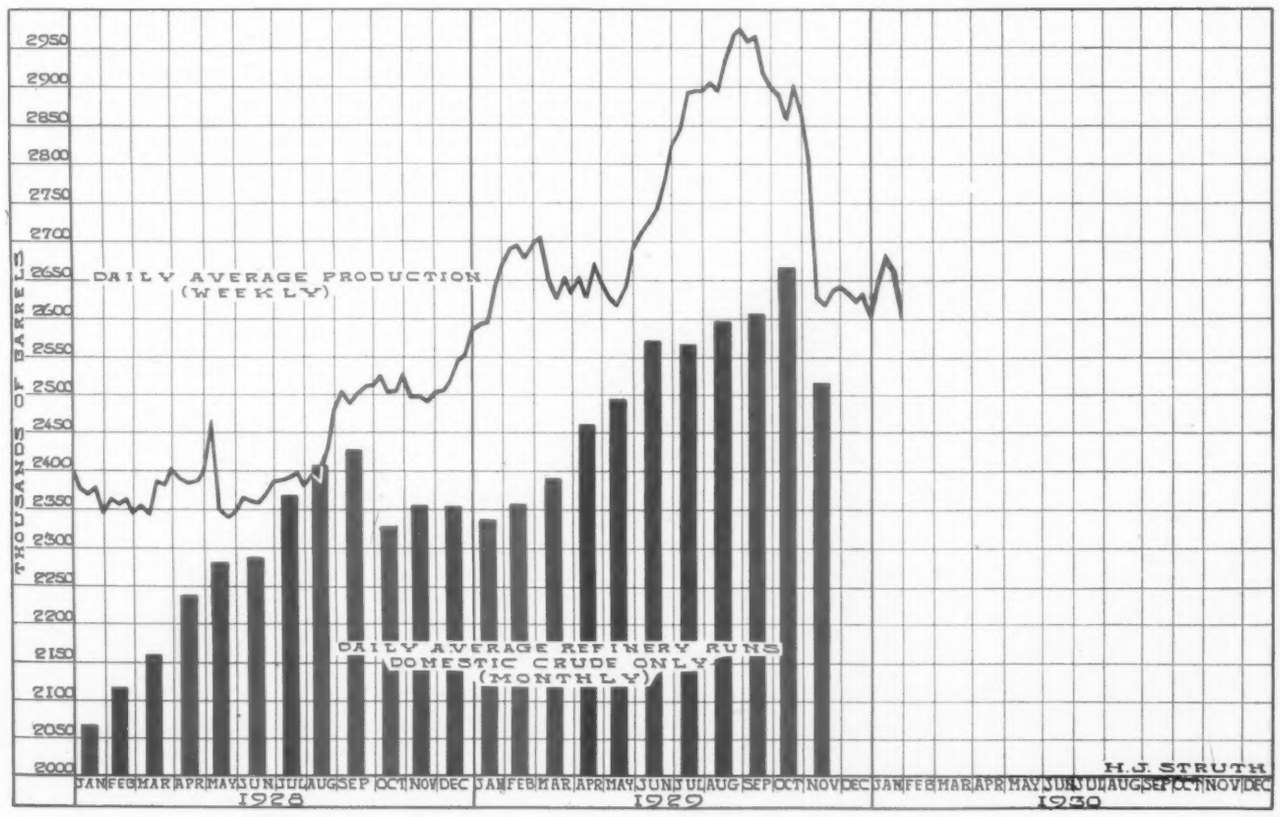
Production Excess Now 252,573 Barrels Daily

PURSUANT to the construction of data prescribing a production "dead line" for the current year, which is presented in a special article appearing in this issue, the writer has prepared additional data that furnishes a better conception of the exact status of production from week to week. In the accompanying table are shown the necessary daily averages for the major producing areas of the United States, compared with actual daily averages reported by the American Petroleum Institute for the week ending January 25. It will be noted that the indicated excess for last week aggregated approximately 252,573 barrels daily. This indicates the piling up of a cumulative excess production since January 1, of about 7,299,025 barrels. According to potential requirements for the month of January, the amount of production necessary during the week ending January 25 should not have exceeded 2,363,027 barrels, whereas there was actually produced a total of 2,615,600 barrels.

The total daily average production reported by the American Petroleum Institute for the week ending January 25 represents a net decline for the United States of 46,050 barrels. This is encouraging in view of the accumulated excess already indicated for this year. The situation revealed by the accompanying data forcefully emphasizes the need for drastic declines in production, however, so that last week's results cannot be viewed with a great amount of optimism. The facts clearly show that unless immediate action is taken to bring about further sharp declines in production, the excess piling up in storage will become a serious menace to the industry. The accumulation of 7,000,000 barrels of excess production in so short a time as 25 days is certainly far from a satisfactory situation and indicates the need for concerted action.

Oklahoma and Kansas are still charged with an overproduction of about 75,000 barrels a day, which can be primarily attributed to a temporarily unsatisfactory condition in the Oklahoma City and Earlsboro areas. Judging from the apparent seriousness with which operators regard their situation, it is believed that this excess will undoubtedly be quickly eliminated by further curtailment of allowable production in those sections, as well as in other areas of the state. At any rate, these facts show that Oklahoma and Kansas are still out of balance as far as sup-

DOMESTIC PRODUCTION AND REFINERY RUNS



ply and demand are concerned and operators there cannot afford to relax their efforts to bring production down to a more normal level. During the first week of this month, the excess charged to Oklahoma and Kansas only amounted to about 15,000 barrels a day, but subsequent events have boosted the total to its present rate. However, during the week ending January 18, the excess was about 100,000 barrels a day, but declines experienced last week improved the situation.

Opposing views on the oil problem are to be found among Oklahoma operators as a result of the mixed schedule of prices that has resulted from the failure of most of the leading Mid-Continent purchasers of crude to follow the Carter Oil Company and others in reducing the posted price schedule.

Oklahoma producers of crude still feel that the price reductions were unjustified and that the cut will not clear the refinery situation. They also feel that the heavy increase in proration in Oklahoma and Kansas justifies serious consideration from the companies who have met the lower price. Three companies have met the lower price, but only two of these effect the Oklahoma producers.

Oklahoma operators have placed in effect an increase of proration at Oklahoma City from 50 to 75 per cent, and increased curtailments at East Earlsboro from 50 to 66-2/3 per cent, and in all flush and semi-flush areas outside of the above areas an increase of 10 per cent, making the proration 30 per cent in these areas. Steps have also been taken to handle any new field that may be opened by stipulating a close pinching in of production from the discovery well and to check future production.

Most of the operators feel optimistic in that they have succeeded to a large degree in curtailing production and that the Prairie Pipe Line Company and Sinclair Crude Oil Purchasing Company, taking between 35 and 40 per cent of the Oklahoma production, have not met the price posted 10 days ago.

Naturally the refined market has felt the reduction of crude prices. Group 3 refiners are quoting U. S. Motor gasoline from six to 6½ cents, compared with 7 cents last week. According to reports there is some gasoline available on the spot market at 5½ cents per gallon. The heavy winter snow and general cold temperatures in the Group 3 marketing territory have had a great influence on the further lowering of all prices. Jobbers are said to believe that the rock-bottom price has been reached and several are adding to storage.

Texas, Louisiana and Arkansas represent the most serious over-production situation in the country, at the present time. Even though partial curtailment has been in effect in Texas for some time, and some improvement has been witnessed during the past few months, it is apparent that the excess quantity of oil in production is a most unfavorable factor, and decidedly detrimental to the market structure. It will be noted that this area is charged with an over-production for last week of 132,860 barrels a day. This readily shows why it became necessary to invoke drastic price reductions throughout this area, a consideration prompted by the workings of economic law. Obviously, until concerted action is taken to shut in the indicated excess output of crude in this area, there can be little, if any, improvement in the price structure.

California has shown material improvement in its statistical position, as regards current supply without consideration of inventories, but the facts at hand show that this state must curtail further to the extent of 21,879 barrels. Whether or not this will be accomplished in the near future depends entirely upon the outcome of operators' agreements. Judging from the late advices received from California, it is apparent that it will be difficult to effect a further reduction in production since marketers of both crude and products anticipate a further increase in out-of-state shipments of gasoline this year, and offer little encouragement in the direction of further curtailment. It looks now as though the industry will be obliged to accept the competitive phase of the California situation as a matter of course, since the California companies are determined to continue their aggressive marketing policies throughout 1930. This is an angle in the situation that furnishes an exceedingly difficult problem and can only be solved through natural causes and effects. In the final analysis, however, the facts show that there will only be a demand for a certain quantity of crude and whether the situation as a whole will reflect economic stability depends entirely upon the effectiveness of production control in each major producing area of the United States.

Stocks of petroleum products, probable production during 1930, possibility of a more effective curtailment plan, likelihood that the gas conservation law will reduce production, lowering of refinery runs, probable shipments of gasoline through

How Last Week's Daily Average Crude Production Compares With Necessary Production for January, 1930

	Necessary Requirements* Month of Jan. (Daily Average)	Actual Prod. Week ending Jan. 25, 1930	Excess
Oklahoma-Kansas	690,934	765,950	75,016
Texas, Arkansas & Louisiana	801,740	935,600	132,860
California	680,321	702,200	21,879
Balance of U. S.	189,032	211,850	22,818
Total	2,363,027	2,615,600	252,573

Cumulative Total Production

	Necessary Production To Jan. 25	Actual Production To Jan. 25	Excess
United States	59,075,675	66,374,700	7,299,025

*Based upon potential demand less imports.

CRUDE RUNS TO STILLS, GASOLINE AND GAS AND FUEL OIL STOCKS, WEEK ENDED JANUARY 18, 1930

(Figures in barrels of 42 gallons)

District—	Potential Daily Capacity	Potential Capacity Reporting Total	Potential Capacity Reporting Per Cent	Crude Runs to Stills Total	Crude Runs to Stills Daily Average	Crude Runs to Stills Per Cent Operated	Gasoline Stocks	Gas & Fuel Oil Stocks
East Coast	605,700	605,700	100.0	3,314,100	473,500	78.2	6,661,000	7,508,000
Appalachian	128,100	117,600	91.8	650,600	92,900	79.0	1,425,000	779,000
Indiana, Illinois, Kentucky	360,000	355,000	98.6	2,048,000	292,600	82.4	6,110,000	3,467,000
Oklahoma, Kansas, Missouri	462,200	409,700	88.6	1,970,300	281,500	68.7	3,919,000	3,244,000
Texas	778,000	705,700	90.7	3,992,400	570,300	80.8	7,421,000	13,193,000
Louisiana-Arkansas	270,600	262,000	96.8	1,346,100	192,300	73.4	2,423,000	4,483,000
Rocky Mountain	148,900	138,300	92.9	409,800	58,500	42.3	2,381,000	997,000
California	897,400	891,400	99.3	4,067,100	581,000	65.2	14,701,000	110,368,000
Total Week January 18	3,650,900	3,485,400	95.5	17,798,400	2,542,600	73.0	45,041,000	144,039,000
Total Week January 11	3,650,900	3,485,600	95.5	17,519,500	2,502,800	71.8	43,741,000	144,051,000
The Texas and Louisiana Gulf Coastal Figures shown Below are Included Above in the Totals of Their Respective Districts:								
Texas Gulf Coast	526,500	526,500	100.0	3,150,500	450,100	85.5	6,382,000	10,256,000
Louisiana Gulf Coast	147,500	147,500	100.0	869,000	124,100	84.1	2,066,000	3,559,000

FIELD STATISTICS OF IMPORTANT DISTRICTS

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	Number Producing Wells	Daily Production Barrels	Daily Prod. Per Well	Rigs Up	Wells Drilling
WEST TEXAS:								
Hendrick	619	3,116,755	5,035	562	87,260	155[1]	..	1
Church & Fields	210	213,910	1,019	203	19,900	98	2	6
Gulf-McElroy	83	61,600	742	81	13,895	172	..	2
Yates	363	2,499,185	6,903	352	134,715	382[1]	5	11
TEXAS PANHANDLE:								
Gray County	542	388,680	717	516	54,515	106[1]	9	52
CALIFORNIA:								
Santa Fe Springs[2]	479	1,557,750	3,252	192	160,000	833	12	175

[1]Production partially pinched. [2]Includes deep zone production only. For field total add 65 wells and 4000 barrels.

the Panama Canal and several other problems are now confronting California operators, and any one of these factors may prove the deciding issue in the state's effort to reach a more stable footing.

Total stocks are around 184,000,000 barrels and there is a decided tendency toward lowering this figure during the year. To do so, exports must necessarily be large, and a continuation of large shipments to markets already overburdened will eventually react against California itself. Production is running abreast of consumption, and one way to reduce stocks is to find additional outlets, producers and refiners believe.

Any radical reduction in stocks will be reflected in increased refinery runs and corresponding increases in gasoline sales. Since the Pacific Coast can absorb only a limited amount of refined products, other districts would feel the effects of trade expansion.

Right now a plan is being considered to hold refinery runs down, but the amount of crude produced will be the guide for refinery operations. There has always been a close connection between production and refinery runs in California, all charts showing that as one increased the other followed—with crude production usually taking the lead. The storage element is closely associated with production and refinery runs and sometimes acts as a mild governor on both. A plan of holding down refinery runs would benefit all branches of the industry, even if production is not held down, but a limited storage capacity might force a quicker pace in refinery operations.

Production and consumption are pretty well deadlocked at this time, and there is a possibility that stocks will be reduced when the spring and summer demand is stimulated. January stocks are expected to show little change over those of December.

Operators in critical fields where conservation programs are in effect seem resigned to a renewal of these agreements. Failure to continue with present plans will undoubtedly be supplanted by agreements which will prove more equitable to local operators. Changes are being made in the plan of operation at Santa Fe Springs, but the basic principles will remain the same.

Completion and operation of a well at Kettleman Hills is threatening to nullify much of the good done by the agreement to complete wells and shut them in until July 1, 1931. Secretary Wilbur is now in California and hopes to influence operators at Kettleman Hills to keep their heads and hold production down as was originally intended. This could easily become a dangerous situation, should caution be thrown to the wins and an endless chain of offsetting be started.

Shipments of California gasoline through the Panama Canal are a fair barometer, indicating conditions on both the sending and receiving end of the transaction. Pacific Coast gasoline is still moving at a good rate through this outlet and it is difficult to forecast movements in the future.

Tanker shipments from the Los Angeles harbor have moved to net back as low as six cents, but refiners are asking from one-fourth to one-half cent more on an average. Very little, if any, profit is made on shipments at six cents, according to one refiner. Out-of-state shipments are bringing from 6½ to 7¼ cents.

The fuel oil market has shown little

(Continued on page 202)

IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

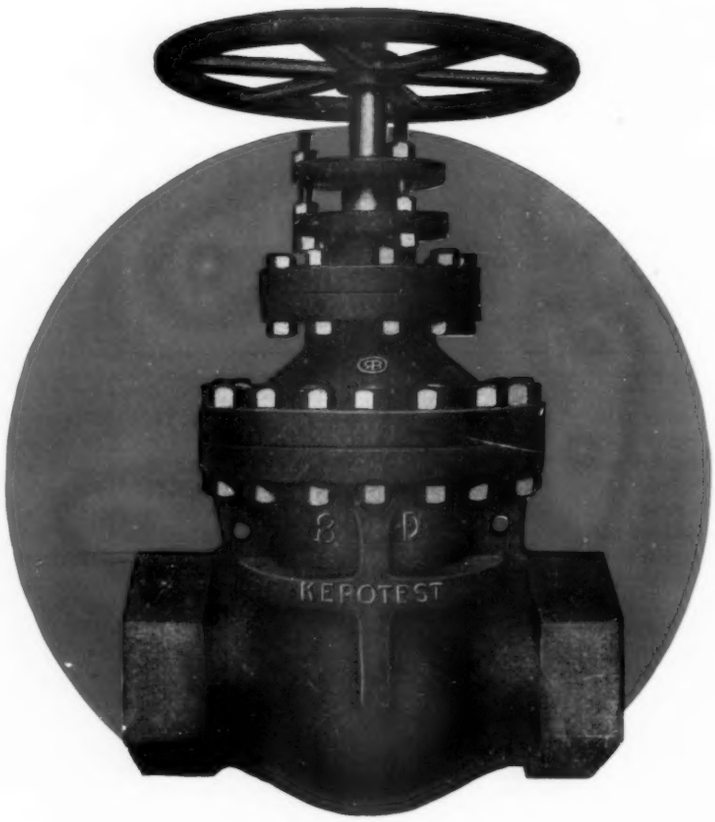
(Barrels of 42 gallons)

	Week Ended January 18	Week Ended January 11
AT ATLANTIC COAST PORTS—		
Baltimore	70,000	193,000
Boston	156,000	.....
New York	1,242,000	920,000
Philadelphia	170,000	404,000
Others	310,000	190,000
Total	1,948,000	1,707,000
Daily Average	278,286	243,857
AT GULF COAST PORTS—		
Galveston District	.....	69,000
New Orleans and Baton Rouge	15,000	92,000
Port Arthur and Sabine District	.....	.....
Tampa	17,000	.....
Total	32,000	161,000
Daily Average	4,571	23,000
AT ALL UNITED STATES PORTS—		
Total	1,980,000	1,868,000
Daily Average	282,857	266,857
Daily Average Four Weeks Ended	264,250	255,714

CALIFORNIA OIL RECEIPTS AT ATLANTIC AND GULF COAST PORTS

(Barrels of 42 gallons)

	Week Ended January 18	Week Ended January 11
AT ATLANTIC COAST PORTS—		
Baltimore	133,000	78,000
Boston	.....	.....
New York	307,000	250,000
Philadelphia	278,000	81,000
Others	97,000	144,000
Total	815,000	553,000
Daily Average	116,429	79,000
AT GULF COAST PORTS—		
Total	.....	.....
Daily Average	.....	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	815,000	553,000
Daily Average	116,429	79,000
Daily Average Four Weeks Ended	79,393	76,000
Distribution of Total California Oil Receipts is as Follows:		
Gasoline	575,000	447,000
Gas Oil	120,000	.....
Fuel Oil	95,000	.....
Kerosene Distillate	25,000	95,000
Lubricants	....	11,000
Total	815,000	553,000



You Are the One to Gain

You are the one to gain by making NORVELL - WILDER your supply department. You can say to yourself after making such a decision that your supply department will run efficiently.

You can save time by having a Norvell-Wilder representative sit in on your purchasing conferences. He is trained to answer your questions *at once*; to give you figures *at once* . . . thus enabling you to estimate your costs at one sitting.

Whether you are planning on immediate or remote purchases—call in a Norvell-Wilder representative. You will find him a well informed oil man. His experience is your gain.

Norvell-Wilder Supply Company

BEAUMONT HOUSTON SHREVEPORT FORT WORTH

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision:

1928	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
August	656,350	102,200	604,000	130,200	40,200	87,500	113,300	77,700	634,150	2,445,600	75,534,600
September	724,850	99,750	604,150	129,500	39,050	84,700	112,550	78,850	631,650	2,050,050	75,151,500
October	741,350	97,900	598,550	129,950	38,800	83,550	114,000	83,300	624,450	2,511,850	77,867,800
November	715,750	96,600	586,350	135,100	38,600	83,000	109,700	81,150	653,050	2,499,300	74,978,300
December	710,600	97,200	603,700	135,050	37,300	81,350	113,450	74,600	697,850	2,551,100	79,084,400
1929											
January	722,550	97,150	632,500	136,750	36,650	78,600	111,950	73,200	747,250	2,635,600	81,703,600
February	714,800	95,950	643,350	142,300	35,700	74,600	108,550	71,750	797,800	2,684,800	75,204,400
March	666,500	95,500	662,500	147,750	35,800	74,250	108,850	70,400	786,000	2,647,400	82,068,350
April	665,600	106,400	650,100	154,550	35,550	72,900	110,850	69,400	781,350	2,646,700	79,402,100
May	679,650	115,400	651,100	150,350	35,350	71,500	114,150	72,850	749,250	2,639,600	81,827,600
June	685,200	120,750	688,200	147,500	35,700	70,050	116,750	72,000	827,200	2,763,400	82,902,250
July	722,050	124,250	718,950	148,150	35,750	68,650	122,000	74,250	874,850	2,888,900	89,555,250
August	728,100	127,950	750,750	153,100	36,300	66,900	126,600	77,900	873,300	2,940,900	91,167,250
September	714,050	128,450	741,200	156,600	37,050	65,300	137,250	78,600	874,850	2,933,350	88,000,650
October	673,600	113,400	714,550	167,050	39,700	64,550	137,400	77,950	876,600	2,864,800	88,809,500
November	640,300	110,050	702,350	171,350	36,750	63,700	135,400	76,550	706,500	2,642,800	79,285,050
December	650,000	111,600	687,850	161,350	38,700	61,850	140,650	76,150	698,200	2,626,350	81,417,000
1930											
Jan. 4	675,900	114,250	680,250	159,500	38,300	60,400	144,050	79,150	700,500	2,652,300	18,566,100
Jan. 11	707,550	112,500	683,200	168,550	38,850	60,800	145,850	72,250	699,700	2,689,250	18,824,750
Jan. 18	694,050	111,250	682,600	171,350	37,400	57,500	142,550	69,650	695,300	2,661,650	18,631,550
Jan. 25	655,550	110,400	651,200	190,400	37,150	56,850	139,700	72,150	702,200	2,615,600	18,309,200
Increase	.....	.....	.....	19,050*	.....	.....	.....	2,500	6,900	.....	.....
Decrease	38,500	850	31,400*	.....	250	650	2,850	.....	.....	46,050	322,350

*Due to classifying Refugio production under Gulf Coast instead of Southwest Texas.

TEXAS (Outside Gulf Coast)

PANHANDLE DISTRICT

	Jan. 25	Jan. 18
Carson County	9,000	9,200
Gray County	54,400	52,950
Hutchinson County	23,600	24,500
Wheeler County	550	600
Others	600	600
Total	88,150	87,850

NORTH TEXAS

Archer County	17,650	17,800
Burkburnett	8,250	9,000
Electra	11,500	11,500
Iowa Park-KMA	5,050	4,800
Montague and Cooke Cos.	11,250	11,800
Wilbarger	25,100	29,000
Others	1,550	1,650
Total	80,350	85,550

WEST CENTRAL TEXAS

Brown County	9,800	9,200
Callahan County	3,400	3,400
Coleman County	6,950	6,600
Eastland-Desdemona	6,000	6,200
Jack County	4,400	4,600
Palo Pinto County	500	550
Shackelford County	9,300	9,300
Stephens County	5,650	5,550
Throckmorton County	600	700
Young County	7,800	8,000
Others	1,850	1,300
Total	56,250	55,400

WEST TEXAS

Crane-Upton Counties	44,150	43,500
Crockett County	1,900	1,950
Howard County	38,200	38,150
Jones County	2,200	2,200
Mitchell-Scurry Cos.	2,150	2,350
Yates	133,500	134,700
Balance Pecos Co.	7,900	6,200
Reagan County	16,400	16,650
Winkler County	87,800	90,350
Others	3,650	3,300
Total	337,850	339,350

EAST CENTRAL TEXAS

Boggy Creek	3,800	3,850
Corsicana-Powell	6,100	6,200
Currie	400	400
Mexia	4,800	4,900
Nigger Creek	250	250
Richland	250	250
Wortham	950	950
Van Zandt	4,600	3,750
Total	21,150	20,550

SOUTHWEST TEXAS

Dale	300	300
Laredo District	8,950	9,000
Luling	10,500	10,600
Lytton Springs	900	900
Somerset	1,500	1,400
Salt Flat	27,400	27,500
Darst Creek	15,200	16,600
Total	67,450	68,600
T'tl Tex.(outside Gulf Coast)	651,200	657,300

TEXAS GULF COAST

Barbers Hill	22,800	23,000
Batson	1,300	1,300
Big Creek	5,000	5,200
Blue Ridge	1,800	2,000
Boling	1,150	1,100
Damon Mound	500	500
Goose Creek	4,850	5,000
Hull	9,400	9,450
Humble	12,800	15,350
Orange County	2,500	2,450
Pierce Junction	11,000	14,100
Raccoon Bend	11,550	10,750
Refugio	25,900	25,300
Saratoga	1,000	1,000
Sour Lake	2,500	2,400
South Liberty	6,650	7,000
Spindle Top	19,700	20,650
Sugar Land	12,200	12,200
West Columbia	6,000	6,200
Washington Co.	1,500	1,700
Fannett	1,700	1,900
Port Neches	2,400	2,250
North Dayton	1,350	1,600
Others	3,600	4,000
Total	169,150	151,100
Texas Total	820,350	833,700

OKLAHOMA

Asher	2,250	2,600
Carr City	9,400	9,250
Logan County	13,900	13,800
Braman	3,600	3,600
Blackwell	3,400	3,400
Hubbard	1,650	1,700
Thomas	550	550
Tonkawa	8,550	8,600
Garber	4,600	4,850
Burbank	16,900	16,900
Osage (outside Burbank)	26,550	26,700
Cushing	14,300	15,050
Yale Jennings	8,550	8,450
Davenport	1,250	1,250
Bristow Slick	17,650	17,950
North Okmulgee	11,300	11,400
Lyons Deaner	6,300	6,400
Cromwell	7,200	7,200
Papoose	2,900	3,000
Wewoka	4,100	4,100
Seminole	22,200	23,200
East Seminole	4,450	4,650
Bowlegs	22,300	24,750
Searight	7,950	8,300
Little River	44,550	46,650
East Little River	18,650	20,800
Earlsboro	29,450	32,300
East Earlsboro	53,150	75,150
Duncan District	8,300	8,350
Graham	3,700	3,750
Fox	1,250	1,300
Healdton	12,200	12,250
Hewitt	7,400	7,450
Scholem Alechem	14,000	14,050
Pearson	850	900
St. Louis	45,050	48,600
Allen	23,100	22,950
Maud	6,650	7,350
Mission	14,150	15,100
Oklahoma City	83,150	79,200
Sasakwa	12,450	13,500
Others	55,700	56,750
Total	655,550	694,050

CALIFORNIA

Santa Fe Springs	168,400	164,000
Long Beach	106,500	104,000
Huntington Beach	41,000	41,500
Dominguez	10,000	9,500
Inglewood	22,500	22,500
Midway-Sunset	73,000	73,000
Ventura Avenue	51,400	53,500
Seal Beach	27,500	28,000
Elwood-Goleta	29,600	27,500
Kettleman Hills	13,300	12,800
Others	159,000	159,000
Total	702,200	695,300

ARKANSAS

El Dorado	4,200	4,250
Champagnolle	5,150	5,250
Smackover Light	5,200	5,600
Smackover Heavy	38,900	39,000
Stephens	1,000	1,000
Nevada	1,100	1,150
Lisbon	1,050	1,050
Others	250	200
Total	56,850	57,500

KANSAS

	Jan. 25	Jan. 18
Greenwood County	21,000	21,000
Florence-Covert	900	900
Peabody-Ebling	3,000	3,050
Eldorado-Towanda	13,150	13,350
Augusta-Fox Bush	2,950	2,950
Rainbow Bend	1,100	1,100
Russell	3,400	3,500
Churchill	4,350	4,750
Oxford	3,150	3,100
Sedgwick	23,400	23,550
Others	34,000	34,000
Total	110,400	111,250

NORTH LOUISIANA

Homer	3,600	3,600
Haynesville	4,600	4,650
Caddo Light	9,300	9,850
Caddo Heavy	2,750	2,900
DeSoto-Red River	2,500	2,650
Elm Grove	500	550
Bellevue	650	600
Cotton Valley	2,200	2,250
Urania	5,200	5,150
Pleasant Hill	950	900
Zwolle	3,900	3,150
Others	1,000	1,150
Total North Louisiana	37,150	37,400

LOUISIANA GULF COAST

Bayou Boullion	50	50
East Hackberry	1,500	1,600
Hackberry	1,300	1,900
Edgerly	800	800
Evangeline	1,550	1,500
Lockport	3,050	3,200
Sorrento	150	150
Sulphur Dome	5,300	4,800
Vinton	3,900	3,900
Others	3,650	2,350
Total Louisiana Gulf Coast	21,250	20,250
Louisiana Total	58,400	57,650

MOUNTAIN STATES

WYOMING

Salt Creek	27,600	24,000
Grass Creek	1,750	2,000
Elk Basin	550	600
Big Muddy	1,950	2,050
Lost Soldier	3,350	3,350
Rock River	2,150	2,200
Lance Creek	250	200
Oregon Basin	3,800	4,250
La Barge	2,100	2,300
Others	3,500	4,250
Total	47,000	45,200

MONTANA

Cat Creek	1,200	1,200
Sunburst	6,500	6,500
Pondera	2,100	2,000
Others	100	100
Total	9,900	9,800

COLORADO

Moffats (Craig)	1,050	1,000
Fort Collins	1,650	1,750
Florence	350	600
Others	1,550	1,600
Total	4,600	4,950

NEW MEXICO

Table Mesa	100	100
Artesia	800	750
Hogback	400	400
Rattlesnake	1,050	850
Bal. Lea & Eddy Co.'s	7,350	6,650
Others	950	950
Total	10,650	9,700
Total Mountain States	72,150	69,650

EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., N. Y., & Mich.)	139,700	142,550

PRODUCTION SUMMARY

East of Rockies	1,841,250	1,896,700
Total U. S.	2,615,600	2,661,650

CRUDE OIL PRICE QUOTATIONS

(Revised to January 28, 1930)

EASTERN STATES

(Effective November 12, 1929)

Penna Grade Oil in New York Transit Lines (New York)	$3.05
Bradford District Oil in National Transit Lines (Pennsylvania)	3.05
Penn Grade Oil in National Transit Lines (Pennsylvania)	3.05
Penn Crude Oil in Southwest Pennsylvania Lines (West Virginia)	3.00
Penn Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	2.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.65
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines	1.90
Somerset Oil in Cumberland Pipe Line lines (Kentucky)	1.55
Ragland Grade Oil in Cumberland Pipe Line lines (Kentucky) (Effective Jan. 29, 1929)	60
Keister (Pennsylvania)	1.20

CENTRAL STATES

(Effective May 21, 1929)

Posted by Ohio Oil Co.

Illinois	$1.75
Indiana	1.57
Lima	1.80
Plymouth	1.28
Princeton	1.75
Waterloo	1.35
Wooster	1.90

WESTERN KENTUCKY

All grades	1.68

MID-CONTINENT

(Effective January 31, 1930)

Carter Oil Company and Magnolia Petroleum Company

Below 25 gravity	$ .60
25 to 25.9 gravity	.66
26 to 26.9 gravity	.72
27 to 27.9 gravity	.78
28 to 28.9 gravity	.84
29 to 29.9 gravity	.90
30 to 30.9 gravity	.96
31 to 31.9 gravity	1.02
32 to 32.9 gravity	1.08
33 to 33.9 gravity	1.11
34 to 34.9 gravity	1.14
35 to 35.9 gravity	1.17
36 to 36.9 gravity	1.20
37 to 37.9 gravity	1.23
38 to 38.9 gravity	1.26
39 to 39.9 gravity	1.29
40 to 40.9 gravity	1.32
41 to 41.9 gravity	1.35
42 to 42.9 gravity	1.38
43 to 43.9 gravity	1.41
44 and above	1.44

From 33 to 44 gravity and above, Magnolia Petroleum Company prices are the same as those of Carter Oil Company.

MID-CONTINENT

(Effective May 20, 1929)

Gulf Pipe Line Company, Sinclair Pipe Line Company, Prairie Oil and Gas Company and The Texas Company

25 to 25.9 gravity	.90
26 to 26.9 gravity	.95
27 to 27.9 gravity	1.00
28 to 28.9 gravity	1.05
29 to 29.9 gravity	1.10
30 to 30.9 gravity	1.15
31 to 31.9 gravity	1.20
32 to 32.9 gravity	1.25
33 to 33.0 gravity	1.30
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.40
36 to 36.9 gravity	1.45
37 to 37.9 gravity	1.50
38 to 38.9 gravity	1.55
39 to 39.9 gravity	1.60
40 to 40.9 gravity	1.65
41 to 41.9 gravity	1.70
42 to 42.9 gravity	1.75
43 to 43.9 gravity	1.80
44 and above	1.85

PANHANDLE

(Effective Jan. 15, 1930)

GRAY COUNTY

(Humble Oil & Refining Company, Magnolia Petroleum Company, Gulf Pipe Line Company)

Below 29 gravity	$ .69
29 to 29.9 gravity	.75
30 to 30.9 gravity	.81
31 to 31.9 gravity	.87
32 to 32.9 gravity	.93
33 to 33.9 gravity	.96
34 to 34.9 gravity	.99
35 to 35.9 gravity	1.02
36 to 36.9 gravity	1.05
37 to 37.9 gravity	1.08
38 to 38.9 gravity	1.11
39 to 39.9 gravity	1.14
40 to 40.9 gravity	1.17
41 to 41.9 gravity	1.20
42 to 42.9 gravity	1.23
43 to 43.9 gravity	1.26
44 and above	1.29

WHEELER COUNTY

(Humble Oil and Refining Company and Magnolia Petroleum Company)

Below 30 gravity	$ .70
30 to 30.9 gravity	.76
31 to 31.9 gravity	.82
32 to 32.9 gravity	.88
33 to 33.9 gravity	.91
34 to 34.9 gravity	.94
35 to 35.9 gravity	.97
36 to 36.9 gravity	1.00
37 to 37.9 gravity	1.03
38 to 38.9 gravity	1.06
39 to 39.9 gravity	1.09
40 to 40.9 gravity	1.12
41 to 41.9 gravity	1.15
42 to 42.9 gravity	1.18
43 to 43.9 gravity	1.21
44 and above	1.24

CARSON-HUTCHINSON COUNTIES

(Humble Oil and Refining Company, Magnolia Petroleum Company and Gulf Pipe Line Company)

Below 32 gravity	$ .72
32 to 32.9 gravity	.78
33 to 33.9 gravity	.81
34 to 34.9 gravity	.84
35 to 35.9 gravity	.87
36 to 36.9 gravity	.90
37 to 37.9 gravity	.93

CALIFORNIA CRUDE OIL PRICES AT THE WELL

(EFFECTIVE NOVEMBER 8, 1929)

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated)

Gravity	Ventura*	Signal Hill	Alamitos Heights-Seal Beach	Huntington Beach	Inglewood	Olinda-Brea Canon	Athens-Rosecrans Dominguez	Elwood† Terrace	Torrance	Richfield	Whittier La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway-Sunset Elks Hills	Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$ .85	$ .70	$ .70	$ .70	$ .70	$ .70	$ ..	$ ..	$ .70	$ .70	$ .70	$ .70	$ .70	$ ..	$ .50	$ .50	$ .50	$ .50	$ .50	$ .50
15-15.9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
16-16.9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
17-17.9	.85	.70	.70	.70	.70	.70	..	..	.70	.70	.70	.70	.70	..	.50	.50	.50	.50	.50	.50
18-18.9	.85	.75	.75	.75	.75	.75	..	..	.75	.75	.75	.70	.75	..	.50	.56	.56	.56	.56	.56
19-19.9	.85	.80	.80	.80	.80	.80	..	..	.80	.80	.80	.75	.80	..	.50	.62	.62	.62	.62	.62
20-20.9	.85	.85	.85	.85	.85	.85	..	..	.85	.85	.84	.80	.84	..	..	.68	.68	.68	.68	.68
21-21.9	.86	.89	.89	.89	.89	.89	..	..	.89	.89	.88	.85	.88	.89	..	.74	.74	.74	.74	.74
22-22.9	.87	.93	.93	.93	.93	.93	..	..	.93	.93	.91	.90	.91	.92	..	.80	.80	.80	.80	.80
23-23.9	.90	.97	.97	.97	.97	.97	..	..	.97	.97	..	.95	.94	.95	..	.85	.85	.85	.85	.85
24-24.9	.94	1.01	1.01	1.01	1.01	1.01	1.01	..	1.01	1.01	..	.98	.97	.98	..	.90	.90	.90	.88	.88
25-25.9	.98	1.05	1.05	1.05	1.05	1.05	1.05	..	1.05	1.05	..	1.01	1.00	1.01	..	.95	.95	.95	.91	.91
26-26.9	1.02	1.09	1.09	1.09	1.09	1.09	1.09	..	1.09	1.09	..	1.04	1.04	1.04	..	1.00	1.00	1.00	.94	.94
27-27.9	1.06	1.13	1.13	1.13	1.13	1.13	1.13	..	1.13	1.13	..	1.07	1.08	1.07	..	1.05	1.05	1.05	.98	.97
28-28.9	1.10	1.17	1.17	1.17	1.17	1.17	1.17	..	1.17	1.17	..	1.10	1.12	1.10	..	1.10	1.10	1.10	1.02	..
29-29.9	1.14	1.21	1.21	1.21	..	1.21	1.21	..	..	1.21	..	1.13	1.16	1.15	..	1.16	1.16	1.16	1.06	..
30-30.9	1.18	1.25	1.25	1.25	..	1.25	1.25	..	..	1.25	..	1.16	1.20	1.20	..	1.22	1.22	1.22	1.10	..
31-31.9	1.23	1.30	1.30	1.30	..	..	1.30	..	..	..	..	..	..	1.25	..	1.28	1.28	1.28	1.14	..
32-32.9	1.28	1.35	1.35	1.35	..	..	1.35	..	..	..	..	..	..	1.30	..	1.34	1.34	1.34	1.18	..
33-33.9	..	..	..	..	..	..	1.41	..	..	..	..	..	..	1.35	..	1.40	1.40	1.40	1.22	..
34-34.9	..	..	..	..	..	..	1.47	1.16	..	..	..	..	..	1.40	..	..	..	1.46	1.26	..
35-35.9	..	..	..	..	..	..	1.53	1.22	..	..	..	..	..	1.45	..	..	..	..	1.30	..
36-36.9	..	..	..	..	..	..	1.59	1.28	..	..	..	..	..	1.50	..	..	..	..	..	..
37-37.9	..	..	..	..	..	..	1.65	1.34	..	..	..	..	..	1.55	..	..	..	..	..	..
38-38.9	..	..	..	..	..	..	1.71	1.40	..	..	..	..	..	1.60	..	..	..	..	..	..
39-39.9	..	..	..	..	..	..	1.77	1.46	..	..	..	..	..	1.65	..	..	..	..	..	..
40-40.9	..	..	..	..	..	..	1.83	1.52	..	..	..	..	..	..	..	..	..	..	..	..
41-41.9	..	..	..	..	..	..	1.89	1.58	..	..	..	..	..	..	..	..	..	..	..	..
42-42.9	..	..	..	..	..	..	1.95	1.64	..	..	..	..	..	..	..	..	..	..	..	..

KETTLEMAN HILLS—55 degrees Gravity and above $1.65 per barrel. *Union Oil Company. †Changed March 18, 1929.

(See Page 188)

WILLIAMS BROTHERS, INC.

PIPE LINE CONTRACTORS

Equipped to Construct Oil or Gas Pipe Lines of Any Type, Size or Length

WILLIAMS BROTHERS, INC.

Engineers — Contractors

425 Exchange Bank Building
TULSA, OKLAHOMA

CRUDE OIL PRICE QUOTATIONS (*Continued from Page 186*)

38 to 38.9 gravity..... .96
39 to 39.9 gravity..... .99
40 to 40.9 gravity..... 1.02
41 to 41.9 gravity..... 1.05
42 to 42.9 gravity..... 1.08
43 to 43.9 gravity..... 1.11
44 and above 1.14

SOMERSET
Grayburg

Below 33 gravity $1.05
33 to 33.9 gravity..... 1.07
34 to 34.9 gravity..... 1.09
35 to 35.9 gravity..... 1.11
36 to 36.9 gravity..... 1.13
37 to 37.9 gravity..... 1.15
38 and above 1.17

WEST TEXAS
Humble, Gulf, Magnolia and Southern Crude Oil Purchasing Company
(Effective Jan. 15, 1930)

Crane-Upton, Crockett, Howard, Pecos and Winkler Counties and Lea County, N. Mex.

Below 25 gravity .....$ .55
25 to 25.9 gravity..... .58
26 to 26.9 gravity..... .61
27 to 27.9 gravity..... .64
28 to 28.9 gravity..... .67
29 to 29.9 gravity..... .70
30 to 30.9 gravity..... .73
31 to 31.9 gravity..... .76
32 to 32.9 gravity..... .79
33 to 33.9 gravity..... .82
34 to 34.9 gravity..... .85
35 to 35.9 gravity..... .88
36 and above ..... .91

Magnolia posts in Crane, Upton and Winkler Counties. Southern Crude Oil Purchasing Company posts only in Crane, Upton and Winkler Counties.

HOWARD AND GLASSCOCK COUNTY CRUDE
(Effective Jan. 15. 1930)

Below 25 gravity .....$ .55
25 to 25.9 gravity..... .58
26 to 26.9 gravity..... .61
27 to 27.9 gravity..... .64
28 to 28.9 gravity..... .66
29 to 29.9 gravity..... .68
30 to 30.9 gravity..... .70
31 to 31.9 gravity..... .72
32 to 32.9 gravity..... .74
33 to 33.9 gravity..... .76
34 to 34.9 gravity..... .78
35 to 35.9 gravity..... .80
36 and above ..... .82

MARKHAM
The Texas Company
(Effective Jan. 15, 1930)

All grades .....$ .75

CORSICANA HEAVY AND LULING
All grades .....$ .75

SALT FLAT AND DARST CREEK
All grades $1.05

NORTH AND CENTRAL TEXAS
(Effective Jan. 15, 1930)

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Currie, Moran, Nocona and Lytton Springs Crude

(Humble Oil and Refining Company)

Below 25 gravity .....$ .60
25 to 25.29 gravity..... .66
26 to 26.9 gravity..... .72
27 to 27.9 gravity..... .78
28 to 28.9 gravity..... .84
29 to 29.9 gravity..... .90
30 to 30.9 gravity..... .96
31 to 31.9 gravity..... 1.02
32 to 32.9 gravity..... 1.08
33 to 33.9 gravity..... 1.11
34 to 34.9 gravity..... 1.14
35 to 35.9 gravity..... 1.17
36 to 36.9 gravity..... 1.20
37 to 37.9 gravity..... 1.23

CLASSIFICATIONS OF GULF COAST CRUDE

The Texas Company: GRADE A—Beaume gravity not over 26.0 degrees at 60 degrees Fahrenheit; sulphur not over 0.5 per cent; in distilling 500 cc. of the crude that part of the distillate cut between 65 per cent off and 85 per cent off shall have a pour test of zero or lower. GRADE B—All Gulf Coast heavy crudes which do not meet tests for Grade "A" or for Gulf Coast light.

Humble Oil & Refining Company: GRADE A—All crude conforming to the following tests: viscosity not less than 100 seconds Saybolt at 100 degrees Fahrenheit; sulphur not over .4 per cent; Beaume gravity not over 25 at 60 degrees Fahrenheit. Cold tests of distillates having a viscosity of 1000 seconds at 100 degrees Fahrenheit shall not be over 5 degrees Fahrenheit. GRADE B—Embraces all Coastal crude which does not meet the tests for "A" grade crude.

Gulf Pipe Line Company: GRADE A—Beaume gravity not over 24 at 60 degrees Fahrenheit; viscosity not less than 100 seconds universal Saybolt at 100 degrees Fahrenheit; and sulphur not over 0.4 per cent. The yield of 250 viscosity reduced distillate at 100 degrees Fahrenheit not less than 30 per cent, and this 30 per cent not heavier than 20 Beaume, and its pour test not above zero Fahrenheit. The reduced distillate to be secured by reducing the crude with fire and steam until the bottoms have a flash of not less than 540 degrees Fahrenheit, and not more than 560 degrees Fahrenheit open cup, and the entire distillate obtained n this way reduced to a distillate of 250 viscosity. The 10 per cent cut in the original distillate having an average viscosity of 500 seconds at 100 degrees Fahrenheit to have a pour test not higher than 5 degrees Fahrenheit. GRADE B—Embraces crude which does not meet test for "A" grade.

Sun Pipe Line Company: GRADE A—Viscosity not less than 100 seconds at 100 degrees Fahrenheit Saybolt. Sulphur not over .4 per cent. Beaume gravity not over 25 at 60 degrees Fahrenheit. Cold Test: of distillates having viscosity of 1000 seconds at 100 degrees Fahrenheit shall not be over 5 degrees Fahrenheit A. S. T. M. Method. GRADE B—All Coastal crudes which do not meet specifications for Grade A crude.

38 to 38.9 gravity..... 1.26
39 to 39.9 gravity..... 1.29
40 to 40.9 gravity..... 1.32
41 to 41.9 gravity..... 1.35
42 to 42.9 gravity..... 1.38
43 to 43.9 gravity..... 1.41
44 and above 1.44

SOUTH TEXAS
Mirando .....$ .75

GULF COAST
(Effective May 21, 1929)

Grade "A" all companies..... 1.05
Grade "B"

Below 25 gravity.....$ .90
25 to 25.9 gravity..... .93
26 to 26.9 gravity..... .96
27 to 27.9 gravity..... .99
28 to 28.9 gravity..... 1.02
29 to 29.9 gravity..... 1.05
30 to 30.9 gravity..... 1.08
31 to 31.9 gravity..... 1.11
32 to 32.9 gravity..... 1.14
33 to 33.9 gravity..... 1.17
34 to 34.9 gravity..... 1.20
35 and above 1.23

WYOMING-MONTANA
(Effective May 21, 1929)
Wyoming

Byron $1.33
Ferris 1.60
Elk Basin 1.65
Grass Creek 1.65
Rock Creek 1.40
Lost Soldier 1.05
Lance Creek 1.68
Mule Creek 1.20
Notches ..... .65
Big Muddy 1.43
Osage 1.65
Hamilton Dome ..... .85
Pilot Butte 1.75
Torchlight-Greybull 1.65
Lander ..... .80
Rex Lake 1.10
South Casper Creek-Poison Spider..... 1.00

SALT CREEK
Midwest Refining Company

29 to 29.9 gravity.....$ .90
30 to 30.9 gravity..... .96
31 to 31.9 gravity..... 1.02
32 to 32.9 gravity..... 1.08
33 to 33.9 gravity..... 1.11
34 to 34.9 gravity..... 1.14
35 to 35.9 gravity..... 1.17
36 to 36.9 gravity..... 1.20
37 and above 1.23

MONTANA
(Effective May 24)

Sunburst $1.75
Cat Creek 1.48
Lake Basin 2.20

NEW MEXICO

Artesia 1.08
Hog Back 1.43

CANADA
(Effective May 21, 1929)

Oil Springs $2.27
Petrolia 2.20

LOUISIANA-ARKANSAS
(Effective Jan. 16, 1930)

Homer, Haynesville, Caddo, El Dorado, De Soto and Crichton and Cotton Valley*
(Atlantic Oil Producing Company, Standard of Louisiana, Magnolia Petroleum Company and The Texas Company.)

27 to 27.9 gravity.....$ .78
28 to 28.9 gravity..... .84
29 to 29.9 gravity..... .90
30 to 30.9 gravity..... .96
31 to 31.9 gravity..... 1.02
32 to 32.9 gravity..... 1.08
33 to 33.9 gravity..... 1.11
34 to 34.9 gravity..... 1.14
35 to 35.9 gravity..... 1.17
36 to 36.9 gravity..... 1.20
37 to 37.9 gravity..... 1.23
38 to 38.9 gravity..... 1.26
39 to 39.9 gravity..... 1.29
40 to 40.9 gravity..... 1.32
41 to 41.9 gravity..... 1.35
42 to 42.9 gravity..... 1.38
43 to 43.9 gravity..... 1.41
44 gravity and above..... 1.44

*Shreveport-Eldorado's postings stop at above 40 gravity.

The posting on Cotton Valley is same as Caddo. From 36 to 52 and above the regular gravity schedule is followed.

The Texas Company pays North Texas gravity scale in North Louisiana.

STEPHENS
(All Companies)

Below 28 gravity .....$ .70
28 to 28.9 gravity..... .75
29 to 29.9 gravity..... .80
30 to 30.9 gravity..... .85
31 to 31.9 gravity..... .90
32 gravity and above..... .95

SMACKOVER
(All Companies)

Below 24 gravity .....$ .85
24 and above 1.00
Bellevue 1.05
Jennings 1.15
Vinton 1.30
Edgerly 1.30
Starks Dome 1.30
Urania ..... .85
Calion ..... .75

TEN YEARS OF PROGRESS

1920 *FAST'S PRINCIPLE OF MECHANICAL FLEXIBILITY* 1930

THROUGH the development of Fast's Principle of Mechanical Flexibility shaft coupling practice has been revolutionized. These words are used advisedly.

The direct connecting of driving and driven shafts was a product of high speeds, the steam turbine and the electric motor. But direct connecting was not practical until some method was devised to compensate for misalignment and thus protect shaft bearings.

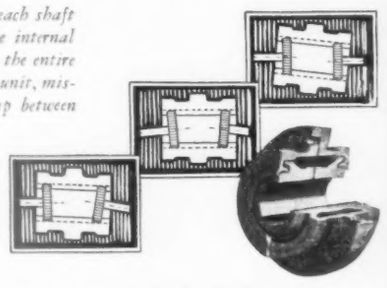
Crude jaw-type couplings were devised and later couplings using flexible members to compensate for shaft misalignment. But the bending or alternate compression and release of the flexible members frequently meant fatigue and ultimate failure. The inevitable result was that shaft couplings, as a class, became natural members of the large family of replacement parts.

To make shaft couplings as dependable as the connected machines, it was necessary to sweep aside former practice. Starting with the premise that the weakness of then current coupling design—flexible materials—must be done away with, the result was the new Fast's Principle of Mechanical Flexibility.

Within the short span of ten years this principle has revolutionized coupling practice. For the first time it became practical to permanently connect misaligned shafts with a mechanically correct coupling, free from all danger of failure of flexible parts. Shut-downs for coupling repairs and replacements became a thing of the past.

The remarkable sales growth of Fast's coupling is the best tribute to this new and better principle. Today Fast's Couplings are solving coupling problems throughout industry, because they have demonstrated their ability to compensate for misalignment, protect drives and, when lubricated, last as long as the connected machines. If you are not familiar with the Mechanical Flexibility, sign the coupon and get full information.

Two spur gears, one on each shaft end, mesh in oil with the internal gears of a floating sleeve, the entire assembly revolving as one unit, misalignment being taken up between the gear faces.



GET NEW 10th ANNIVERSARY CATALOG

THE BARTLETT HAYWARD CO.

217 Scott St., Baltimore, Md.

Without obligation, please send me a free copy of the new bound edition of the 10th Anniversary Catalog of Fast's Couplings, as soon as it is off press.

NAME .....

FIRM NAME .....

ADDRESS .....

CITY AND STATE .....

PERSONAL MENTION-MEN YOU KNOW

W. H. Stueve, who has been in charge of pipe line pumping work in the commercial department of the Oklahoma Gas & Electric Company with offices in Muskogee, Oklahoma, has been transferred to the general offices of the company in Oklahoma City with supervision over all power sales to the oil industry.

Eli R. Cunningham, of the United Gas Company, with headquarters in the general offices at Houston, has been promoted from assistant superintendent of operations to superintendent of operations, which contemplates the general superintendency of Dixie Gulf Gas Company and Houston Gulf Gas Company, both subsidiaries of United Gas Company. Mr. Cunningham succeeds J. W. Bartlett, who has resigned in order to join Walter Reid as a consulting engineer.

Ralph B. Pringle has been made vice-president and general manager of the Tidal Oil Company, filling a vacancy that has existed since A. A. Beard resigned last summer. Until early in December, 1929, Mr. Pringle was vice-president and director in charge of production for Independent Oil & Gas Company. Previously he was with Waite Phillips Company.

B. L. Laird, superintendent of land department for the California Company in the Southern district, with headquarters at Dallas, has been transferred to San Francisco to join the secretarial offices of the Standard Oil Company of California, which is the parent organization of the above producing company.

John M. Crawford, president, and H. J. Lockhart, general manager of the Parkersburg Rig & Reel Company, with headquarters at Parkersburg, West Virginia, visited the district sales offices of the company in Fort Worth and other Texas points during the past week.

Thomas B. Slick, prominent Oklahoma producer, with C. F. Urschel, vice-president of Tom Slick Oil Company and Louis Campbell, superintendent of the land department of the Oklahoma-Kansas division of Magnolia Petroleum Company, and other oil men, are hunting in southwestern Texas and northern Mexico.

Ray Lyman Wilbur, Secretary of the Interior, is now in California and will take an active part in a plan to hold production down at Kettleman Hills.

Victor Machris, well known in California oil circles and secretary of Wilshire Oil Company, died at the California Hospital in Los Angeles, December 19, following a short illness caused by a paralytic stroke. With his brothers, George and Alfred, he had built a large producing and refining company from a very small organization during the past few years.

Gill Studies Corrosion For The Gulf

STANLEY GILL

Stanley Gill, corrosion engineer for the research department of the Gulf Oil Corporation, with headquarters in Houston, is one of the authors of a commendable paper on aluminum foils appearing in this issue of THE OIL WEEKLY. Having devoted his efforts for the past six years to problems of corrosion as existing in the petroleum industry, Mr. Gill is particularly well qualified to discuss those problems, and the paper presented in this issue, entitled "Aluminum Foil Protective Coatings for the Oil Industry," will no doubt be read with great interest and value—interest because it concerns a subject which is relatively new and about which very little has been written, and value because it embodies conclusions drawn from exhaustive study and experimentation in that new field.

Mr. Gill will be remembered as the author of a paper entitled "Aluminum and Its Alloys as Corrosion Resistant Material in the Oil Industry," read at the December meeting of the American Petroleum Institute in Chicago and published in this journal in the issue of December 6, 1929.

Mr. Gill was born in Seattle in 1899. He received the degree of Bachelor of Science in chemical engineering at the University of Washington, Seattle, in 1920, and then following three years of graduate work in chemical engineering at Columbia University, took the degree of Chemical Engineer at that university in 1923. He then became associated with the Mellon Institute, and continued his service in that organization until November, 1929, when he transferred to the Research Department of the Gulf Companies.

Walter F. Rogers and Stanton U. McGary, the other two authors of the above mentioned paper on aluminum foils, also have their headquarters in the Houston offices of the Gulf Companies.

C. E. Yager, chief geologist for Texas Pacific Coal & Oil Company, was elected president of the Fort Worth Geological Society for the ensuing year at the annual meeting which was held during the regular weekly luncheon on January 20. W. W. Patrick, geologist for The Texas Company, was elected vice-president, and M. F. Bohart, geologist for Pure Oil Company, secretary-treasurer.

H. A. DuPont, chief draftsman for the Western Gulf Oil Company, has been chosen first president of the Oil Map Revision Association, a new organization composed of draftsmen for the leading California oil companies. A. C. Johnson of The Texas Company of California was elected vice-president and treasurer.

F. W. Taylor, president of Jordan and Taylor, Inc., is making an extended business trip through the Mid-Continent fields.

Capt. J. F. Lucey, president of the Lucey Petroleum Company, Dallas, and a representative of the American Petroleum Institute at a recent session of the National Business Survey Conference of the United States Chamber of Commerce, delivered a paper on "Unitization, Co-Operation and Proration" at the regular meeting of the Dallas Geological Society held January 22. Capt. Lucey has made a thorough study of conditions affecting the oil industry, and outlined his views on economies in operation and co-operation.

Oklahoma--Kansas Field Notes

WARREN BAKER, *Staff Representative, Tulsa, Oklahoma*

Two Voshel Pool Completions; Field Is Not Curtailed

WICHITA.—Two new wells in the Voshel pool, McPherson County, were the most important developments in Kansas during the past week.

On the southeast edge of the field, Prairie Oil & Gas Company and T. B. Slick's Stuckey 1, NWc SW Section 10-21-3w, swabbed 300 barrels the first three hours and was then shut down. The Wilcox sand was topped at 3359 feet with the oil coming from 3361-64 feet.

Sinclair Oil & Gas Company's Voshel 2, SW NW Section 10-21-3w, on the eastern edge of the field, proved somewhat larger than earlier performances indicated but it still measures beneath most of the wells in the area. It swabbed 945 barrels in 24 hours for its highest production. The producing horizon is the Wilcox sand 3344-46 feet. The top of the Wilcox sand was 3322 feet with deeper drilling helping to increase the flow from 200 barrels.

No restrictions were placed on development in the Voshel district at the recent conference in Wichita, where production was limited to between 50 per cent and 25 per cent of the potential, and oil men are wondering if the activity will be less impetuous than it has been for the past month. Several new locations have been staked in the pool recently, but new work is expected to drop until more completions have been made. The failure of the Sinclair Oil & Gas Company's Voshel 2, to make a bigger well is expected to slow activity on the east side of the field.

The Wallace wildcat of the McPherson County Oil & Gas Company in Section 12-19-2w, is rated good for 9,000,000 cubic feet of gas from chat at 2902-43 feet. It is being connected with Kansas Pipe Line Company's main which picks up gas from Wedel, Hull, Giffen and Decker wells.

Rice County

Another area that is looking good is the Raymond district of southwestern Rice County. Here the Boucher Oil Company's Boy 1, Section 16-21-10w, is being completed for 11,000,000 feet of gas from sand at 2550-53 feet. This is five miles from the Schurr wildcat which yields the highest gravity oil in Kansas. The latter well, belonging to T. B. Slick et al, is still making around 125 barrels per day of 53 gravity oil. Two wells are expected to be completed in the Schurr pool at once.

A Kansas wildcat test that is being closely scouted is White Eagle Oil & Refining Company's Lorenz 1, SE Section 25-27-5w, Kingman County, which is due to pick up the Viola lime and which is running very high.

In northwestern Trego County, Phillips Petroleum Company's Spitz 1, Section 24-12-25w, has a half bailer of oil and a bailer of water per hour from 4170-75 feet. Producers & Refiners' Kinsley 1, Section 24-15-21w, is a failure. It had a showing near 3925 feet and water at 3950 feet. Prairie Oil & Gas Company's Kutina 1, Section 29-15-25w, had a hole full of water at 3950 feet, above the Gorham sand, and is underreaming to shut off the water.

Continental Oil Company and Gypsy Oil Company's Corr 9, SE Section 1-26-1w, is the best well completed in the Wright pool, Sedgwick County, in some time. It made 1357 barrels in 23 hours on the swab, which is more than the combined output of the other eight wells on the lease.

J. S. Cosden's Dewish 1, NE W½ SW Section 1-26-1w, in the Wright pool, is being abandoned after drilling to 5012 feet. It made seven barrels of oil a day in the Dolomite encountered at 3370 feet. This is the deepest test ever made in Central Kansas.

Dixie Oil Company and Amerada Petroleum Corporation failed to extend production in the Lygrisse pool to the north, with Emerald 1, SW SW NW Section 11-26-2e, which found a hole full of water at 3191 feet in the Viola lime topped at 3168 feet.

Curtailment Reduces Oklahoma City Production to 70,000 Barrels

TULSA.—Oklahoma City production showed a smart decline the latter part of the past week when the new proration order limiting production to only 25 per cent of the open flow capacity went into effect. In order to secure an equal cut on each well the field had been divided into four classes, A, B, C and D and only one of these classes are permitted to flow at a time. The output of the field which has been running more than 100,000 barrels per day fell to 57,056 barrels one day but for the most part has been making around 70,000 barrels.

The best producer finished in the week was Indian Territory Illuminating Oil Company, Foster Petroleum Corporation and Cromwell-Franklin Oil Company's Lizzie Farley 1, NWc Section 19-11-2w, on the east side of the field. This well ranks up with the best producers ever completed in the state. It produced 30,438 barrels of oil in 24 hours, of which amount it made 17,312 in 13 hours and 45 minutes. This flow was made against 800 pounds back pressure. It is ranked with Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's Thomas Fuzzell 1, SW SE SE Section 13-11-3w, which made 43,982 barrels in 24 hours on November 14.

Indian Territory Illuminating Oil Company's Drake 2, SEc Section 14-11-3w, immediately south of Jack Shaffer, Hall & Briscoe's Childs 1, west extension well at Oklahoma City, made 8780 barrels initial after which it was shut in. It is producing from the Detrital horizon at 6369-91 feet.

Of interest were the formations encountered in Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's P. Trosper 1, NWc Section 18-11-2w, northeast corner of the field. This well topped the Arbuckle lime at 6115 feet and at 6335 feet went into Simpson sand. It is bailing at 6442 feet, where it has a showing of oil and gas through rotary mud. This erratic behavior of the geological column practically proves the general existence of a fault in this vicinity. This fault has been accredited with feeding the water to the Arbuckle limestone horizon.

Another drilling test attracting much attention is T. B. Slick's Hussman 1, SW NW SW Section 29-11-2w, far to the east of production. This well is said to be running more than 50 feet higher than Skelly Oil Company's Hoopes 1, Section 31-11-2w, which made 32,000 barrels of oil. The Slick test should be one of the early completions in the east extension and should it produce it would prove a large area, running in the shape of an egg to the east.

Section 25-11-3w, in the south end of the pool, continues to be very active. Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's Peterson 1, NE NE SW Section 25-11-3w, an old well being deepened, has a

sand at 6384-6407 feet, and drilling at 6462 feet in sandy lime, where it made 1296 barrels according to the latest gauge.

Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's Watters 3, SW SW NE Section 25-11-3w, made 2034 barrels while agitating from the Detrital zone at 6388-6410 feet. This well for some time looked very disappointing. The same companies' Anderson 1, SE SE NE same section, had sand from 6272-6320 feet, which has been cased off. Arbuckle lime was found from 6425-29 feet, where it has been shut in for an estimated 125,000,000 feet of gas.

Indian Territory Illuminating Oil Company-Foster Petroleum Corporation's Canfield-Button, SE NE SW Section 19-11-2w, was another new well. It made 1096 barrels the first hour and 50 minutes from a depth of 6511 feet.

Shell Petroleum Corporation had a new oiler in Petty 7, SE NW NE Section 30-11-2w, which made 1087 barrels in 23 hours, when it was shut in due to water production having increased to 20 per cent. Depth was 6457 feet.

Indian Territory Illuminating Oil Company and Foster Petroleum Corporation's Kuhlhoff-Henning, SW SW SE Section 24-11-3w, furnished the pool with a wild gasser during the week. Sand cut out connections with a volume of 100,000,000 cubic feet of gas behind it.

Oklahoma Operators Expect Price Schedule to Be Restored

TULSA.—When this week dawned without other crude oil buyers meeting the price reduction, announced last week by Carter Oil Company, producers began to sharpen their pencils in anticipation of marking a victory in the fight they have made against the lower schedule. The opinion is gaining ground to the effect that another few days will see the Carter schedule back at its former figures and that the threatened price reduction will have been averted.

While there is basis for the hope that all prices will revert to the old figures, the question of victory for the producers will be offset by victory from the buying group. To those inclined to look both fore and aft in the matter, it seems that an aversion of a price reduction will be a victory for each side.

To come through the cloud that hovered over the Mid-Continent price structure, when Carter Oil Company cut was announced, with the posted prices still in the fair weather column is a victory of the first order. Credit for any such outcome is due wholly to the producers of the Mid-Continent, for their prompt action brought them all in line on a common ground. To consider a victory as resulting from the stubborn resistance and determined stand against lower prices is questionable. It seems more logical to credit such to what the oil producers of the Mid-Continent really did, rather than what they said, or what they thought.

What they did was to further curtail the output of certain flush oil fields, especially in Oklahoma and to some extent in Kansas.

It is on that score that the outcome may be counted as a victory for the crude buying section of the petroleum industry. The patience exhibited by the major buyers in the past six months is ample evidence that none desired to post lower prices for crude oil. Officials of these concerns evidently much preferred lower well output to lower crude prices. Had the former been their chief concern, they could have been buying their oil at lower prices many months back.

These observations are not intended to imply that the price reduction was instituted solely as a threat. When California prices were reduced last fall, it was announced that proration must come about or lower crude prices would remain in force. What happened in Texas, Oklahoma and Kansas was that prices were reduced by a few buyers, while others declined to meet the new schedules.

So with buyers undoubtedly concerned more about production than about prices, it takes no long stretch of the imagination to see a victory marked up for the buyers in the further curtailment of Oklahoma and Kansas oil fields. There may arise the question—what was wrong with previous curtailment of these oil fields?

So much has been accomplished through cooperative curtailment since last fall that criticism seems out of place. But it must be admitted that still further curtailment of flush fields has been imposed since the one Oklahoma buyer reduced prices last week. The price reduction was wholly responsible for this further curtailment.

Neither was there the uniformity of purpose that has now come to producers. In fact there were a few concerns, which had agreed in principle but not in practice. The threat of lower prices righted a condition in Kansas where some trouble had been experienced.

The closer affiliation of producers to come out of the crude price threat has given proponents of the crude oil tariff another round of ammunition. The first Tulsa mass meeting of producers brought forth a resolution in favor of a tariff on crude oil imports. Then Wirt Franklin, chairman of the mass meeting and president of the Independent Petroleum Association of America, issued a call for another mass meeting in Tulsa, January 27, for the purpose of further considering the crude oil tariff.

Regardless of where crude oil prices finally stand and regardless of what may become of the agitation in favor of a tariff, there is one result that can be counted a victory for oil producers. They have learned something of the value of a united effort. They met in Tulsa in a time of stress and promptly put a further curtailment on Oklahoma City, East Earlsboro and other flush Oklahoma areas.

Their united action seems to have had some weight with crude oil buyers, for they have been slow to follow the lead of a price cut.

What has happened this month has made it certain that oil producers will in the future be quick to put their troubles in one basket for easy carrying. There will be less of the few individuals who are reluctant to follow a program for minor reasons.

Tulsa Meeting Takes First Step Toward General Unitization

TULSA.—The first step in organizing a definite unitization program for the petroleum industry was taken last week in Tulsa. The general unitization committee of the Mid-Continent Oil & Gas Association met here January 22.

Following the opening of the meeting by W. N. Davis, general president of the association and vice-president in charge of production for the American Petroleum Institute, a general discussion of the unit operation topic was had.

James A. Veasey, general counsel of Carter Oil Company, Tulsa, then moved that a steering sub-committee be created and the unitization program definitely organized. This was agreed upon and the following committee was appointed: R. F. MacArthur, vice-president in charge of production of Barnsdall Oil Company; J. A. Veasey, Paul S. Ache, president of Reiter-Foster Oil Corporation; Harry H. Smith, general secretary of Mid-Continent Oil & Gas Association; and W. N. Davis as an ex-officio member.

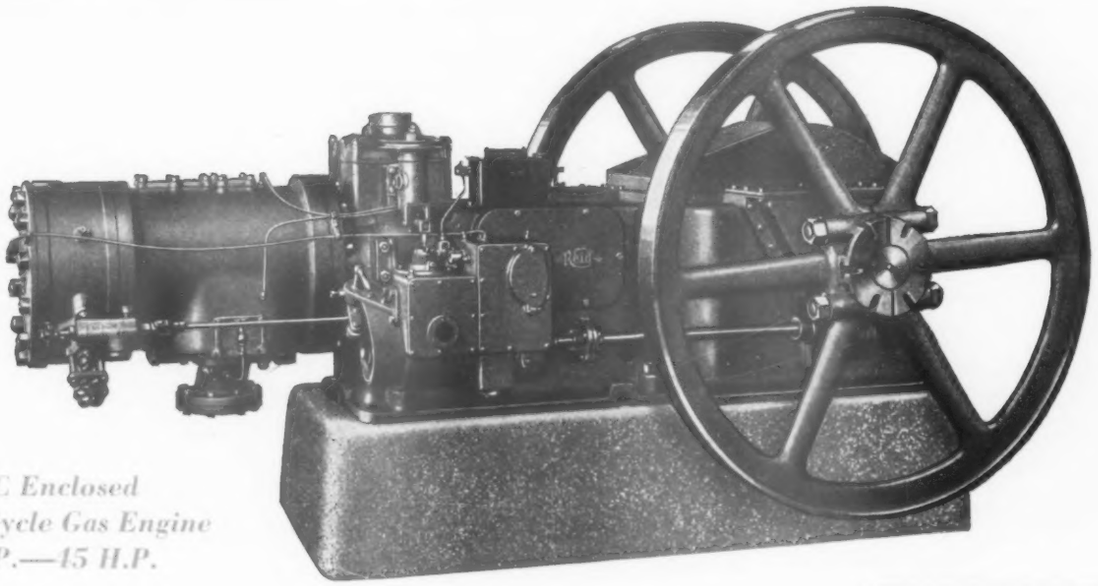
This committee met January 24 and were busy outlining a course of action, which is to include a handbook and a general education campaign on unit operation to be carried to all districts.

Unitization is a plan to reduce drilling costs to a minimum and to permit all participants of any unitized pool to profit at the smallest cost, including the royalty owners, and to further aid in curtailing the output of oil production.

The plan is to be discussed at the American Institute of Mining and Metallurgical Engineers at its meeting in New York the middle of February. Earl Oliver, Ponca City, Oklahoma, is chairman of this organization's research work on unit operation.

Beside being endorsed by Mid-Continent Oil & Gas Association unitization has been endorsed and ratified by the American Petroleum Institute. It promises to become an outstanding plank of 1930 for the industry.

REID



Type C Enclosed Two Cycle Gas Engine 40 H.P.—45 H.P.

For Pumping Beam Wells—

A wide speed range—abundant power at all speeds—flexibility of operation—and low operating and maintenance expense are inherent features of the Reid Type C Enclosed Two Cycle Gas Engine—and are features that have caused several major producers to standardize on these engines for all beam well installations.

Any branch or agency will be glad to give you the complete information on these engines and any other Reid oilfield machinery.

OUTSTANDING ADVANTAGES

- Removable cylinder head.
- Cylinder can be removed without disturbing governor case.
- 3-Feed force feed oiler for cylinder.
- Exhaust ports amply water-jacketed.
- Automatic air starting valve.
- Governor or speed wheel regulated gas valves.
- Governor may be adjusted for any desired speed while engine is running.
- Speed wheel arrangement permits engine speed to be increased without changing setting on governor.
- Enclosed governor running in oil.
- Disc type inlet valve on top of cylinder.
- Governor, Wico igniter, and oil circulating pump mounted as one unit.
- Bored cross-head guide.
- Split hub flywheels; one furnished with Reid std. hub, other wheel furnished with A.P.I. std. hub.
- Removable steel backed babbitt-lined main bearings.
- Enclosed bed plate.
- Counterbalanced crank.
- Helical drive gears for lay shaft.

JOSEPH REID GAS ENGINE CO.

OIL CITY, PENNSYLVANIA, U. S. A.

BRANCHES—Marietta, Newark, and Logan, Ohio; Charleston, W. Va.; S. R. Shoup, 724 Board of Trade Building, Los Angeles, California.

EXPORT SALES REPRESENTATIVE—Oil Field Equipment Co., Inc., 30 Church Street, New York City.

DISTRIBUTORS—Frick-Reid Supply Corp., Pittsburgh, Pa., and Tulsa, Oklahoma, Distributors for Bradford and Pittsburgh, Pa., Muskegon and Mt. Pleasant, Mich., Kentucky, Oklahoma, Kansas, Texas, Arkansas, Louisiana and Wyoming; R. B. Moore, Bolivar, N. Y.; distributed in California by The Republic Supply Co. of California, Los Angeles, Cal.

OIL FIELD MACHINERY

North and West Texas Field Notes

H. H. KING, *Staff Representative, Fort Worth, Texas*

Taylor-Link Field Extended Two Directions by Flowing Wells

SAN ANGELO, Texas.—Three tests were in process of completion as pumpers in and near the townsite of Grand Falls, Ward County, early this week, with market connections available from the Wickett Pipe Line Company. These wells are producing from sandy lime at the 2150-foot level, and are expected to average about 30 barrels each. The Alpine Oil & Development Company discovered the pool, and is adding its second producer, while one each are on leases held by E. J. Anderson and associates and the Grand Falls Oil Company.

Penn Oil Company and Atlantic Oil Producing Company's semi-wildcat test in central Ward County on the Cooper land, Section 43, Block 34, showed for a small oil producer at 2657 to 2660 feet, but developed a hole full of sulphur water in drilling deeper.

Southern Crude Oil Purchasing Company is moving in rotary to drill on the Harris land in Section 30, Block B 19 and several miles east of the Cooper test.

Extensions were made on the oil producing area in the Taylor-Link field, Pecos County, to the east and west during the past week with flowing wells. Arkansas Fuel Oil Company's University 1, Section 32, widened the field more than a half mile to the east with an initial flow of 287 barrels of 27.9 gravity oil at 51 degrees temperature during eight-hour gauge, partially pinched, from regular lime at 1525-35 feet. It was flowing 425 barrels daily, with some water and b.s. showing, late last week, but will be offset to the south by Amerada Petroleum Corporation. The latter concern was completing its first producer in the field for a west extension early this week when its University 1, located in the NE SE SW Section 13, Block 18, responded to a light shot in lime at 1700 feet. Tankage has been erected to make a gauge of the production. Shell Pipe Line Company will provide an outlet for both of these new wells, and is now running the bulk of the output of the field for purchase since acquiring the system of Landreth Production Corporation January 15.

Three new derricks were erected during the past week in the Connell field, Ector County, and are to be used by Humble Oil & Refining Company, Penn Oil Company and Atlantic Oil Producing Company, joint operators, in drilling offsets to tests completed or drilling in on the University fee land. These companies are confronted with more offset locations to be taken care of on the west and south edges of their six-section block. Landreth Production Corporation's University 1-S, which was reported last week as having given the Connell field its first important producer with an initial flow of 950 barrels of 34 gravity oil at 3598-3661 feet, has been pinched to about 160 barrels daily. This well had produced about 3750 barrels up to January 25, and the oil is going into lease storage, pending a pipe line connection that is reported to be furnished by Shell Pipe Line Company. Cosden Oil Company is planning to erect one or more 80,000-barrel steel tanks in the field, should successful completions result from its two tests on University fee. The latter are nearing the oil horizon, with key formations running normal for production. Gulf Production Company has made a tentative location to be drilled south of Cosden Oil Company's University 1-B, Section 2.

M. J. Bashara et al's Fee 2, a wildcat test located northeast of the Hendrick field, Winkler County, is rated as a 75-barrel producer, or better, while cleaning out cavings and mud in hole at total depth of 3086 feet. This well began flowing by heads two weeks ago after encountering broken lime pay at 3043-86 feet, but bailed dry on January 25. Cavings necessitated the running of a liner. A string of 2½-inch tubing will be installed.

G. R. Henson, chief petroleum engineer of the Kansas, Oklahoma and Texas Panhandle division of Shell Petroleum Corporation has left Tulsa for the east where he will sail for London and The Hague, to consult with high officials of the Royal Dutch Shell about its production problems in the three sectors of the Mid-Continent field.

North Texas Operators Forming New Oil and Gas Association

WICHITA Falls, Texas.—Operators and representatives of independent companies engaged in producing, refining and marketing of oil in the North Texas district gathered here January 25 and took preliminary steps for the formation of an organization that will function as a medium in promoting the welfare of the oil industry throughout the district. Several hundred oil men were in attendance, including many of the most prominent operators, and the meeting went on record as being unanimous for the formation of an organization to be known as the North Texas Oil & Gas Association.

Recent crude price reductions in Texas figured prominently in the short talks made during the open discussion, while attention was also given by the speakers on adverse legislation, excessive taxation and conservation of oil and gas resources of the state.

Roy B. Jones, president of Panhandle Refining Company, was nominated chairman of the meeting, with Walter Steimel, acting secretary. Prior to this gathering of operators in the district a meeting was held on January 18 in Wichita Falls to prepare resolutions of protest to each of the companies taking part in the crude price reduction. Replies from Humble Oil & Refining Company and Gulf Production Company were read.

John O'Donohoe, president of Petroleum Producers Company and former president of the Texas Division of the Mid-Continent Oil & Gas Association, spoke on the urgent needs of a local organization to deal with adverse legislative and taxation matters. W. B. Hamilton outlined his views on waste of natural gas in drilling flush fields. Talks were also made by J. S. Bridwell, owner of Bridwell Oil Company, W. W. Silk and others.

The officers and board of directors of the North Texas Oil & Gas Association are to be filled from representatives of all oil producing counties comprising the district, and a goal of 500 members has been set by the membership committee. A temporary board of directors for Wichita County, and these in turn elected the following temporary officers: P. B. Flynn, president; John F. O'Donohoe, vice-president; and Fred Sehmann, secretary-treasurer. The temporary board included the above and Roy B. Jones, E. H. Eddleman, Chas. King, J. S. Bridwell, W. B. Hamilton, Lee Underwood, Homer Lee, Harvey Harris and M. A. Rutis.

The election of a permanent personnel for the organization will take place at the next meeting, which will be called by the offcers after the state wide meeting of oil operators is held in Fort Worth January 31.

Hobbs Extension Producer Makes New Record for New Mexico

ARTESIA, New Mexico.—Previous records on initial production of wells in New Mexico were shattered January 26 when the semi-wildcat test of Humble Oil & Refining Company on the D. A. Bowers-Government permit averaged 358 barrels of 35.6 gravity oil per hour on six-hour gauge from lime at 4061-4106 feet. This unusual producer gives a three-mile northwest extension to the Hobbs field, Lea County, and it will probably remain shutin as storage is practically filled, while it is isolated from both railroad and pipe line transportation. Cut oil estimated at 10 per cent of the volume during the first hour's flow diminished to a fraction of one per cent after the well had cleaned itself of rotary mud, water and baroid.

Two other flowing wells on inside locations in the Hobbs field proper were completed while the Bowers producer was being equipped for its gauge during the past week. Midwest Refining Company's O. B. Terry 13, located in the SE corner of the N½ of SW¼ Section 10-19s-38e, gauged 745 barrels of oil during first 24 hours, followed by a second gauge of 900 barrels daily, from broken lime 4035-4175 feet. Shell Petroleum Corporation's Thorp 1, an east offset to the above new producer and a north offset to a shutin well of the Walker Oil Corporation, scored an initial flow of 1100 barrels of oil during 24-hour period ending Thursday morning from lime at 4142-61 feet, and gauged 678 barrels during the next 14 hours. Plans are to deepen Thorp 1 to 4180 feet, and shutin. These adjoining wells are located less than a mile southeast of Midwest Refining Company's discovery well on State permit, which opened the field in July, 1928, but not officially completed until April 24, 1929, as a 700-barrel producer at 4055-4220 feet. It was plugged back from water at 4245 feet. Midwest Refining Company has a potential daily production of about 3300 barrels daily from its four completed wells, and is drilling in lime formation below 4140 feet in A. L. Wright 6, Section 14-19s-38e.

Humble Oil & Refining Company's Bowers 1 attracted attention last August when it developed a 200-barrel flow of oil and considerable gas from shallow horizon at the 3200-foot level. This horizon was mudded off, and a flow of 50 million cubic feet of gas at 3684-87 feet hindered operations with the heavy rotary for several months until it could be lubricated. A string of 6⅝-inch pipe was cemented at 3962 feet. This well was cored into the lower oil and gas horizon January 20, and while coming out with core barrel flowed 275 barrels of oil in 40 minutes on the latter date. A string of three-inch tubing was then installed after drowning the production with water. The late gauge was made with the oil coming out through tubing. Bowers 1 is located 1980 feet from the south and 660 feet from the east lines of Section 30-18s-38e, and nearby leases are split up into 160-acre tracts or smaller.

No market is in sight for the production in the Hobbs field by pipe lines, but construction work is being rushed by the Texas-New Mexico Railroad from Winkler County, Texas, via Hobbs to Lovington, New Mexico, with expectations of handling freight by June. Local refineries and tank car exportation of crude will probably follow completion of this rail line, which will be the first for Lea County.

The Texas Company has announced that effective February 1 its purchases of crude in the Lea field, which has recently developed an output of about 8000 barrels of 30-31 gravity crude daily from eight pumping wells in the 3700-foot lime horizon, will be greatly restricted because of market conditions. This company has placed a limit of 500 barrels daily on purchases from the properties of Cranfill-Reynolds Company et al, and a maximum of 300 barrels daily on the single well held by Continental Oil Company. The latter's State 1 was pumping 250 barrels daily until fire destroyed the rig, but has a south offset nearing completion. Cranfill-Reynolds et al's three wells on the State "A" lease have been averaging about 3500 barrels daily. The Texas Pipe Line Company will render common carrier service on operators in this field, and arrangements are being made by Cranfill-Reynolds et al to have their surplus production delivered to idle tankage held in Winkler County, Texas. The Texas Company is planning to shorten the pumping stroke on some if its wells to curtail production until market conditions improve.

Three Big Lake Deep Tests Making Progress

SAN ANGELO, Texas.—Progress was made during the past week by the Big Lake Oil Company on three of its tests that are drilling in the upper section of the deepest oil and gas producing horizon held by the Big Lake field. The goal of these tests is to reach the equivalent of the 8500-foot horizon that was discovered on an adjoining lease late in November, 1928, by Group One Oil Corporation (Continental Oil Company). The latter company's University 1-B is averaging about 2850 barrels of 56 gravity oil and 27,000,000 cubic feet of wet gas daily from sandy lime at 8500-23 feet, and had produced 931,165 barrels of oil up to the close of 1929.

Big Lake Oil Company's University 2-C is using heavy rotary equipment to drill into the producing formation, having changed from cable tools at 8221 feet. First production was encountered at 8187 feet, and while drilling with rotary last week increased at 8231-32 feet in sand. During the 24-hour period ending Monday morning this well was allowed to clean itself for 13 hours, then gauged 190 barrels of high gravity oil in 11 hours, with an estimated flow of 7,435,000 cubic feet of gas. Big Lake Oil Company's University 1-C is drilling shale formation at 8359 feet, with some trouble from cavings, while University 3-C, which began flowing last October at 8379 feet, is occasionally forced to halt operations with cable tools to kill the increased production, and Monday was drilling in gray lime at 8460 feet. University 4-C encountered top of deep pay at 8220 feet November 8, and drilling has been temporarily halted at this depth, with the well flowing 195 barrels of 67 gravity oil and about 4½ million cubic feet of gas daily.

Total crude yield from the Big Lake field's discovery well of the deep horizon passes the million barrel mark this month, with daily output hovering near the peak level about once a week. Group One Oil Corporation's University 2-B is drilling in shale at 4510 feet, and University 3-B is trying to sidetrack drill stem at 2990 feet. The latter two are slated to go to the 8500-foot level with rotary equipment the entire depth.

Gas Survey to Eliminate Explosion Hazard

Houston.—A meeting of Houston and natural gas company officials was held Tuesday for the purpose of working out a plan for doing away with the menace of explosions which have wrecked five houses and injured two persons in Houston within seven months. A house-to-house survey is planned to determine all gas leaks. When such leaks are found, the home owner must repair them immediately or forfeit the use of the utility.

Hendrick Field Has Big Lead in Total Recovery in West Texas

SAN ANGELO, Texas.—Accumulative crude production of five of the most important fields in the West Texas district amounted to approximately 281,000,000 barrels at the close of 1929, with average yield per acre running close when past development is considered. The Hendrick field, Winkler County, tops the list on total crude yield through having been more intensely drilled and provided with the largest crude market outlet, but lags behind on oil recovery per acre. Four of these major oil areas had first commercial production in 1926, while the Big Lake field made its first bid for attention in May, 1923.

The Hendrick field proper has been the most spectacular of the group, even though restricted on production by proration rules since May 5, 1928, with a maximum production allowance of 175,000 barrels daily during the following months. On the basis of 10,840 producing acres, the Hendrick field produced 110,648,000 barrels, or an average of 10,207 barrels per acre. This field is virtually drilled up, and production is declining steadily. Important extensions are not likely to occur, while there are some prospects of commercial production being developed below the 3600-foot level.

The Big Lake field, Reagan County, where two companies control all leases, produced 42,894,528 barrels up to the close of 1929, or an average of 11,439 barrels from its 3750 acres on production. However, this acreage is not 50 per cent developed, should the owners elect to space wells at close intervals. The 8200-8500-foot sandy-lime horizon, which has been found productive over a sizeable area, offers great production possibilities for the future at reasonable drilling costs. This record depth oil and gas horizon yields the highest gravity oil found in the southwest.

Leadership on crude recovery per acre is taken by the Church & Fields area, Crane County, with a recovery of 13,550 barrels, and an accumulative production of 42,682,900 barrels. This field's flush production was given priority over that offered by Yates and Hendrick fields during 1927 and 1928, and offered little new field work in 1929. The Gulf-McElroy area, which is controlled in a solid block by Gulf Production Company, and in reality is the south portion of the Church & Fields area, has produced 10,545 barrels per acre, with only the north one-half of the north tier of sections fully developed. Gulf Production Company has about 10,000 acres of oil producing leases in this single unit, with only about 1500 acres developed. It is a crude reserve that will require many years to drill.

The Yates field, with its spectacular wells at shallow depths, is near the ideal of a model field, and has more than 1200 proven locations to drill on its 16,000-acre area. Restrictions on production have been applied to the field since its beginning in October, 1926, and the daily allowance for the field did not reach the 130,000-barrel mark until July, 1929. Yates field has produced 68,874,200 barrels from 350 wells, or an average of 4305 barrels per acre. Its ultimate crude yield per acre is generally rated as being greater than any other single field in the district. A harmonious proration plan is in force in this field, and its huge daily potential production is given very little market consideration for this reason.

Locations by "Outsiders" Not to Disrupt Van Plan

Corsicana, Texas.—Locations were staked during the past week by two companies for the drilling of tests near production in the Van field on small tracts located within the unitized area. The lease ownership of the two drilling sites is being contested, and the two companies that made the proposed locations do not plan to abide by the unit method of development. Should drilling proceed on these two sites there is little danger of the unit plan of operation as now in effect becoming seriously disrupted.

Central Oil Company is reported to have staked a location to be drilled on a narrow strip of land, located at the southwest corner of the R. H. Peters 70.6 acre tract, Lot 3, Nacogdoches County School Land Survey, and about 3000 feet northwest of the Van field discovery well. Hart Oil Company is reported to have staked a location to be drilled on the O. L. Swain 2.3-acre tract, John Walling Survey, and about 1½ miles northeast of production.

Three outpost tests in the Van area were scheduled to drilling in this week, including The Texas Company's R. A. Tunnell six-acre tract, located about 4000 feet southeast of production. This test is low on structure, having logged the Austin chalk formation at 2431-2615 feet, with a surface elevation of 490 feet, and cemented seven-inch casing at 2744 feet after coring oil saturated Woodbine sand to 2769 feet. Shell Petroleum Corporation's Fowler 1, located between the above test and production, has cemented casing at 2460 feet, and early this week was drilling plug at 2495 feet, with indications of being located very favorably on structure. Pure Oil Company, which is performing all work in the field in accordance with the unit plan, was drilling in R. L. Wells 1, located southwest of production, after cementing pipe at 2518 feet. The same company's A. F. Magers 1, located about one mile north of production, is a doubtful test, having logged Austin chalk at 2567-2701 feet, and at last reports was drilling and coring at 2820 feet, with a surface elevation of 475 feet.

The productiveness of the principal oil fields in the West Texas district is illustrated by the data contained in the table below:

Fields—	Date Discovered	Prod. Wells	No. Producing Acres	Total Production to 1-1-30	Average Crude Yield Per Acre
Hendrick	11- 8-26	562	10,840	110,648,000	10,207
Yates	10-30-26	350	16,000	68,874,200	4,305
Church & Fields	4-19-26	204	3,150	42,682,900	13,550
Gulf-McElroy	7-21-26	81	1,500	15,866,900	10,545
Big Lake	5-28-23	245	3,750	42,894,528	11,439

Bureau of Mines Figures To Be More Complete

Washington, D. C.—Future reports of the Bureau of Mines will contain more complete statistics than in the past. Certain sections of the monthly summary of petroleum statistics will appear in new and more detailed form beginning with the January report. Revised forms will be forwarded to oil companies by the Bureau, with the request that their January figures be prepared accordingly.

The new report will make it possible to trace crude oil to the field of origin and provide the industry with more accurate information on stocks on hand. Included in the more important changes is provision for breaking up the present item on gas and fuel oil stocks into two items, one covering production and stocks of gas oil and distillate fuel oils and the second production and stocks of residual fuel oils. These figures will give the industry for the first time a true conception of the gas oil stocks in the country, as it will separate the potential cracking oil stocks from the residual fuel oil figures. Efforts will be made to solve the problem of obtaining a figure showing the amount of gas and fuel oil consumed in the United States. In California a great amount of heavy crude is piped directly into fuel oil tanks and sold without processing.

A change is also contemplated in figures showing stocks of crude oil at refineries. Hereafter reports are expected to show these stocks by fields of origin, rather than by locations of storage. This change will make it possible for the industry to know just how much crude oil produced in certain sections was in storage at refineries.

BITURINE COATINGS

Biturine Enamel — *Biturine Solution No. 5*
Biturine Enamel Primer — *Biturine 70-30*
Biturine Coupling Mixture

This group of protective coatings represents the fruits of more than 20 years of careful research and practical experience. Biturine Enamel and Primer are particularly adapted to the Hill, Hubbell & Company process of mechanically applying protective coating to the pipe at the mill.

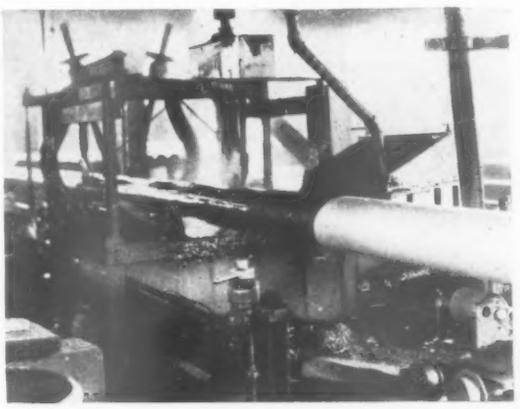
Mechanically coated and wrapped pipe. The newest development in pipe line protection

Now you can buy line pipe mechanically coated and wrapped *at the mill.* No longer need the laying of new lines or the renewal of old ones be subject to the hazards and delays caused by the old method of applying the protective coating in the field. Your pipe is delivered to you ready to lay, fully protected by the Hill, Hubbell & Company process of coating the pipe and wrapping it at the mill.

It is generally accepted by authorities that *proper application* of pipe line coating is the most important feature in the success of any form of protection. Field applications under the most ideal conditions have never been productive of a 100% satisfactory job in all cases, owing to the unfavorable conditions under which the work had to be carried on—inclement weather—unskilled labor—varying temperatures—the difficulty of properly cleaning the pipe and applying the coating of the protective material so as to cover the surface thoroughly.

The Hill, Hubbell & Company process of mechanical application at the mill eliminates all these difficulties, and presents the following outstanding advantages:

1. The pipe is thoroughly cleaned of all rust and mill scale.
2. It is not only thoroughly dry but warm when the primer is applied.
3. The required thickness of the protective coating of Bitumen is applied *before* the felt is applied.



The Coating and Wrapping of the Pipe is a Continuous Mechanical Process

4. This thick coating is applied in two coats, insuring freedom from pin holes and bubbles.
5. The coating of felt is applied under tension and is exactly spaced and, therefore, perfect.
6. The whole process is mechanical, involving no human element, and no waste.
7. The entire operation goes on under roof and can proceed night and day regardless of weather.
8. Exact temperature control of the Bitumen is possible. This is important and cannot be had in field operations.

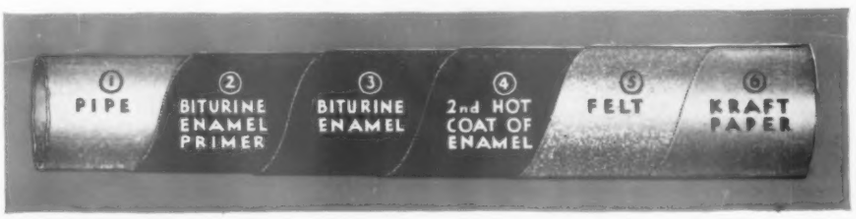
Plants for the mechanical coating and wrapping of pipe are located in the following cities for the production of the pipe manufacturers listed.

Central Tube Company, Ambridge, Pennsylvania; Spang-Chalfant & Company, Ambridge, Pennsylvania; Youngstown Sheet & Tube Company, Indiana Harbor, Indiana; National Tube Company, Lorain, Ohio; A. O. Smith Corporation, Milwaukee, Wisconsin; Youngstown Sheet & Tube Company, Youngstown, Ohio.

Others are contemplated and will be installed in the near future. Each of these plants is equipped to handle pipe up to 24 inch diameter and to conform to specifications covering a wide range of combinations of materials.

Write to our nearest office for literature descriptive of the process and for details regarding specifications.

GENERAL PAINT CORPORATION
HILL, HUBBELL & COMPANY DIVISION
CHICAGO NEW YORK TULSA HOUSTON DALLAS SAN FRANCISCO OAKLAND
LOS ANGELES PORTLAND SEATTLE SPOKANE



Hill, Hubbell & Company Machine Coated and Wrapped Pipe is Your Best Insurance Against Corrosion

OIL

Its Conservation and Waste

By
JAMES H. WESTCOTT

This is a new book on petroleum written especially for the layman. The style of the book is such that it will appeal to the man not familiar with petroleum or the methods of recovering it. It gives a birds-eye view of the industry in its three phases.

Much data in the form of figures supplements the subject matter. These figures cover production, refining, etc., and constitute a good source for general information. There are 62 tables covering a wide range of topics related to the industry.

213 pages—$3.00 Postpaid.

The GULF PUBLISHING COMPANY
P. O. Box 1307 Houston, Texas

Have a Copy Sent to Your Home

Why depend on reading the "Office Copy" when you can get a copy of The OIL WEEKLY for your own files,—sent to your home each week for

ONLY $1.00 A YEAR

Use the Coupon NOW

- - - - - - - - - - - - - - - -

The OIL WEEKLY,
Box 1307, Houston Texas.

Gentlemen: Please find enclosed one dollar (check or currency will do) for which send me your publication for one year.

Name .....

Street and No. .....

City ..... State .....

I am with the ..... Company

and my position is .....

(BE SURE TO STATE COMPANY AND POSITION, otherwise it will be necessary for us to hold up entering your subscription until we can get this information from you.)

Steel as tough *as the birds who use it!*

Tough is the word—able to endure strain—hardship and severe labor—always to emerge the victors.

What more could be said of the men responsible for the production of oil and gas? But what greater tribute can be paid to ASCO Well Bit Tool Steel—than to compare its qualities with the stamina of these men.

Just as they are acquainted with the hard knocks of life so is ASCO Well Bit Tool Steel acquainted with the seemingly unpenetrable surface of the hardest rock formations.

ASCO Well Bit Tool Steel is made under the careful supervision of experienced metallurgists, to resist abrasion in the toughest of rock formations.

THE ANDREWS STEEL CO. ASCo NEWPORT KENTUCKY

Gulf Coast Field Developments

JACK LOGAN, *Staff Representative, Houston, Texas*

Barbers Hill Deep Well Holding Up Production

Houston.—Humphreys Corporation's Kirby 8-A, semi-wildcat producer which discovered a prolific oil sand at 6397-6416 feet on the northwest flank of Barbers Hill dome, is still maintaining the high rate of production which it established just after completion. On January 28, 1930, over three weeks after blowing in, it flowed 8100 barrels, and at that time had produced a total of 194,000 barrels. Four-inch drill stem is still in the well, inside 7⅝-inch casing, and on the above date the pressure in the casing was 150 pounds and in the drill stem 450 pounds. Those pressures are only a little lower than when the well first came in. The flow is restrained by a three-quarter-inch choke on a line from the drill pipe and by a one-inch choke on one from the casing.

There were two completions at Barbers Hill the past week. Sinclair Oil & Gas Company's Wilburn 2 came in flowing 1350 barrels pipe line oil daily from 5160 feet, and Mills Bennett Production Company's Wilburn 2 was completed for initial production of 2000 barrels pipe line oil through one-half-inch choke.

Humble Extends 8-Hour Day to All Departments

Houston.—Effective February 1, the eight-hour working day will be extended to those employees in the producing branch of the Humble Oil & Refining Company and in the pipe line company who have not previously been working on that schedule, according to announcements by W. S. Farish, president of Humble Oil & Refining Company and R. V. Hanrahan, president of the Humble Pipe Line Company. Notices have already been sent to the field superintendents authorizing this action.

The newly announced change to the eight-hour day will not materially affect total net earnings of the employees, although it will result in increases in hourly earnings.

Inasmuch as the company has been curtailing operations for some time and plans further cutting down of activity, there will be some transferring of employees, and the change to the eight-hour day will be effected without the necessity of increasing the personnel

Humble Oil & Refining Company provides various other benefits for its employees, such as its stock purchasing plan, sickness, accident and death benefit plans, insurance, annuities after certain periods of service with the company, vacations to wage earners after two years service, and health supervision.

Spindle Top Leads Coast in Recovery

HOUSTON.—During 1929 Spindle Top crowded Humble out of first place among Gulf Coast fields in all-time crude oil recovery, but each has now produced considerably more than 100 million barrels. There are six Coastal fields which have produced over 50 million barrels each, as follows:

Field—	1929	1928	All Time through 1929
Spindle Top	9,923,100	14,021,300	107,680,200
Humble	3,043,200	683,150	103,150,650
Sour Lake	983,300	1,235,350	73,341,350
West Columbia	2,381,600	2,946,200	71,018,950
Goose Creek	2,140,400	2,551,950	66,397,800
Hull	3,417,100	4,167,200	64,481,850

Humble Townsite Well Makes 1500 Barrels From Deep Sand

HOUSTON.—The importance which Humble dome, Harris County, assumed during the past year through development of deep flank sands has been further enhanced through completion of Sun Oil Company's Bender 3, a virtual wildcat on the west edge of the field, as a large, flowing well. On Tuesday, January 28, when two joints of 4½-inch screen had been set in 45 feet of sand at total depth of 3903 feet the well began flowing pipe line oil at the estimated rate of 1800 barrels per day. On actual 15-minute gauge it flowed at the rate of 1500 barrels daily, but was increasing. It was flowing meanwhile through a one-half-inch and a three-eights-inch choke, and showed 225 pounds pressure, but the pressure was increasing. The crude tested 31.5 gravity at 62 degrees temperature. Six and five-eighths-inch casing is set in this well at 3850 feet.

The new Sun Oil Company well is a little south of the center of the west side of the dome in the Bender South Addition to the town of Humble. Adjoining acreage is also divided into town lots.

Completion of this well is of particular interest inasmuch as it furnishes the first deep production of that part of the field, and it is doubly interesting in view of the fact that before the advent of the present deep development, when shallower production was extended off the north, east and south sides of the dome, attempts to extend it also westward were unsuccessful. In other words, with the exception of a few relatively deep wells, the productive area of the west portion of the dome heretofore has extended only so far as the limits of shallow production on top of the dome.

The new producer of Sun Oil Company is about the same distance off the dome as the prolific deep wells completed during the past year in the southeast and south portions of the field, but it is almost three miles around the dome from the nearest of those wells.

Aside from completion of the Sun Oil Company well, Humble field was an interesting area by virtue of three other new wells finished during the past week. The deep production of the southeast flank was extended somewhat westward through Cullen & West's Lee 2, which came in the latter part of the past week flowing 1964 barrels of pipe line oil daily from 4941 feet. Humble Oil & Refining Company's Williams 10, which offsets Cullen & West's Lee 2, was completed at total depth of 5316 feet for initial production of 600 barrels. The other completion of the week was South Texas Petroleum Company's Morris 12, on the southeast flank. On the beam it began producing 40 barrels daily.

Whereas the new Sun Oil Company well is producing 31.5 gravity crude, the deep wells along the southeast flank of the field are yielding around 43 gravity oil.

The Texas Company's Dunman 2 is setting screen in oil sand at 5360 feet. That well is 250 feet west of No. 1, which has been a particularly good producer. This company's Carroll Oil & Gas Company 30 is rigging up; Atlantic & Gulf 1 is rigging up; Koehler 36 has set casing at 3950 feet.

South Texas Petroleum Company's Morris 14 is drilling around 750 feet; Lee 3 is drilling gumbo at 2005 feet. West Production Company's Foster Lumber Company 2 has set 9⅝-inch casing at 4000 feet.

Humble Oil & Refining Company's Williams 8 is drilling sandy shale at 4285 feet, and Trahan 2 is reaming at 4827 feet.

New Pipe Line Outlet Increases Movement of Refugio Crude

HOUSTON.—The Gulf Coast Pipe Line Company, owned by the William F. Morgan interests of San Antonio, has completed one-half of the looping project through which it is increasing capacity of its pipe line out of the Refugio field, and is now moving around 15,000 barrels of Refugio crude daily to tankers loading terminal at Port Aransas on the coast.

Heretofore the company has been able to handle only about 10,000 barrels of crude daily. The original line, built in the summer of 1928, is of six-inch pipe, and has a total length of about 32 miles. Under the looping project, an eight-inch line is being laid. A booster station has been erected at Bayside, which is mid-way between Refugio and Port Aransas, and with one half of the new eight-inch line and also the booster station now in operation, the capacity of the system has been materially increased. When the other half of the eight-inch line is completed, the total capacity of the looped line will be around 25,000 barrels daily. That other half of the line is expected to be in operation within a week or two.

The Gulf Coast Pipe Line Company's system constitutes the only pipe line outlet of the Refugio field, and the crude which has been handled through it has been purchased by the Henry L. Doherty interests and The Texas Company. The former contracted for one million barrels at the time the original pipe line was built, and that contract having been filled, it is understood, although the report could not be verified in Houston early this week, that the Gulf Coast Pipe Line Company has made new contracts involving sale of one million barrels of Refugio crude to the Cities Service Oil Company (Henry L. Doherty interests) and one-half million barrels to The Texas Company. The first million barrels bought by the Henry L. Doherty interests went to their Braintree refinery near Boston.

In addition to the movement of crude out of Refugio by pipe line, some also is being shipped out by tank car. Sun Oil Company is making shipments to its refinery at Toledo, Ohio. Saxet Oil Company is shipping Refugio crude to Iowa, Illinois and Minnesota for use as fuel oil. United Gas Company is shipping some of the high gravity Refugio oil to its refinery located at Laredo, Texas, operated as the Motor Fuel Products Company.

From the standpoint of production as well as in drilling activity, Refugio is now the leading field along the Gulf Coast. During the week ending January 20, 1930, the average daily production there was 25,928 barrels from 77 wells. Striking an average for the 77 wells, the production is 337 barrels daily average per well. Those oil producing wells are owned by 12 operators, as follows:

Company—	No. Wells
Union Producing Company	12
Houston Gulf Gas Company	11
Houston Oil Company	11
Saxet Oil Company	11
Morgan Oil Corporation	9
Independent Oil & Gas Co.	7
Sun Oil Company	6
Pearson Properties	4
Benedum Tress Oil Company	2
Refugio Oil Corporation	2
Dr. W. E. Hewitt	1
The Texas Company	1
Total	77

Some of the Refugio wells are making as much as 40 to 60 per cent water, but that is a more or less normal condition for the field, some of the best producers having started off making water along with the oil. In many cases the oil production of Refugio wells has increased since completion, and practically all producers completed in the field since the discovery of oil there in July 28, 1928, are still producing. In a few exceptional cases wells have sanded up. Illustrating the increase of production, the record of Union Producing Company's Danby 1 may be cited. Incidentally it has been one of the best wells of the field. It was completed September 11, 1929, at 3653 feet, and during the remainder of the year produced as follows:

Month—	Bbls.
September	6,682
October	13,571
November	16,284
December	19,463
Total to Dec. 31	55,980

The "banner" wells of the field so far are two of the Refugio Oil Corporation on the Murphy lease on the east side of the field. These two wells at present have a combined production of approximately 5000 barrels daily. Murphy 1 was completed October 29, 1929, at 3681 feet, and produced 3810 barrels of oil in October and 27,484 barrels in November. Murphy 2 was completed December 13, 1929, at 3707 feet, and it and No. 1 in December had a combined yield of 22,460 barrels.

The outstanding development at Refugio during the past week was the completion of the fourth producing well in the recently discovered 5500-foot sand on the extreme eastern edge of the field. It was Saxet Oil Company's Ryals 1. With 6⅝-inch casing set over the oil sand which was logged at 5453-61 feet, screen was set and the well came in flowing approximately 500 barrels daily of the high gravity oil characteristic of the deep sand.

The other three producing wells previously completed in that sand are the Union Producing Company's O'Brien 1, Mitchell 2 and Powers 2. Production from the 5500-foot sand is around 30 degrees corrected gravity. An analysis of the oil from the deep sand discovery well, Union Producing Company's O'Brien 1, showed the gravity to be 29.5. This deep oil is high in gasoline content, yielding 48 to 50 per cent straight run gasoline, and it is free of sulphur.

Aside from the production from these four 5500-foot wells, Refugio crude is altogether from sands found around 3700 feet, and that production is around 23 gravity, being Grade "A" Gulf Coast crude. The 3700-foot production has been developed principally on the south and east sides of the field, but several wells of that depth have also been completed on the west, north and northeast flanks of the field, the oil producing area lying just outside the main producing area of the gas field, which has been yielding natural gas on commercial basis for several years. Although it s near the coast, Refugio is situated somewhat southwest of the limits of the regular salt dome country, and there is apparently no salt dome at Refugio.

During the past week there were two oil producers completed aside from the new 5500-foot well. Houston Oil Company's Pratt-Hewitt-Rooke 12 came in flowing 200 barrels pipe line oil daily through a quarter-inch choke from sand at 3676-86 feet, and showing 1400 pounds pressure. Pearson Properties, Incorporated, completed Claude Heard 1, located in the center of Town Block 27, for 500 barrels initial production, pipe line oil, through a one-half-inch choke: pressure was 600 pounds: and the sand was logged at 3681-87 feet.

Independent Oil & Gas Company's J. F. B. Heard 2-B on initial test flowed at the rate of one barrel oil per hour, showing the high gas pressure of 1170 barrels with the well held in with a three-eighths-inch choke. The well has been killed and an effort will be made to cut off the gas producing portion of the sand.

Although the three wells mentioned above were the only ones completed during the past week at Refugio, there are over half a dozen others ready to be drilled in.

Independent Oil & Gas Company's West 2 is nippling up on 9⅝-inch cas-

SPEED

safer!
positive!
lighter!

Stab it on! Pull it off!

that's how quick
W-K-M PETOL
TUBING TONGS
WORK!

There are no chains to wrap around the tubing, no links to get into position, and no hinged members to latch or unlatch. You stab on the W-K-M Tubing Tong with one hand, and there it is, ready for the heaviest pull. When you want to take it off, a slight jerk of the hand releases it immediately.

Action of the jaws is regulated by concealed spring tension. They are always in open position. As the tong is thrown onto the tubing, the jaws spread until the lower jaw bumper comes in contact with the tubing. Then the jaws close, and high-speed tool steel bits grip at three separate points. Releasing the tong the operation is exactly the opposite. A jerk forces the tubing to pry open the jaws, and the tong comes off.

In addition to being light in weight, quick, and very easy to operate, the W-K-M Tubing Tong has the advantage of a locking device which enables it to be used either for "make-up" or for "break-out" work on tubing. This lock tightens the grip of the bits, without crushing the pipe, and holds them at an angle at which they can either tighten or loosen a joint.

W-K-M Tubing Tongs are made in 2-in., 2½-in., 3-in., 3½-in., 4-in., 4½-in. sizes.

The W-K-M CO., *Inc.*

OIL FIELD-PIPE LINE & INDUSTRIAL EQUIPMENT

HOUSTON - TEXAS

EXPORT OFFICE: 74 TRINITY PLACE, NEW YORK, N. Y.

Cable Address: "WILKOMAC"

ing set at 3655 feet preparatory to drilling in to test an oil and gas sand at 3656-64 feet. The same company's Claud Heard 2 has set 9⅝-inch casing at 3685 feet and is now nippling up to drill in an sand showing oil at 3686-87 feet.

Houston Oil Company's Rooke (Pratt-Hewitt) 11 was drilling plug early in the week, 8¼-inch casing having been set over an oil sand found at 3670-80 feet.

Rutherford Taylor Oil Company's Town Block 92 Well No. 1 at the same time was ready to swab in from 3677-95, at which horizon an oil showing was encountered.

Houston Gulf Gas Company's J. T. Vance (Morgan) 2, which promises to be a good producer from an oil sand encountered at 3682-83 feet, has 8¼-inch casing set at 3679 feet.

Heep Oil Company's Rutherford 1 has set 6⅝-inch casing over an oil and gas sand found at 3674-3709 feet.

Morgan Oil Corporation Swift 1, has set 6⅝-inch casing over an oil and gas sand found at 3671-89 feet, and that company's Fox (Block 71) No. 1 has set 6⅝-inch casing over sand at 3674-93 feet showing oil and gas.

Caillou Island First New Field in 1930

Houston.—Caillou Island, Terrebonne Parish, Louisiana, wins the distinction of being the first Gulf Coast field opened in 1930. The first production was obtained there on January 24, when The Texas Company's Caillou Island 2, second test drilled on the dome following discovery by seismograph, came in flowing 1100 barrels of 28 gravity pipe line oil daily from total depth of 3239 feet. In this well 9⅝-inch casing is set at 3221 feet.

Location of this first producer of Caillou Island dome is 1800 feet west and 475 feet north of the southeast corner of Section 18-23s-20e. The dome is located just out of the southeast corner of Terrebonne Bay and out of the southwest corner of Timbalier Bay, and by virtue of the latter fact was for a time designated as Timbalier Bay dome.

This newly productive dome was found by Louisiana Land & Exploration Company in 1928 through use of seismograph, and was one of the seven Terrebonne Parish domes which the discovery company in November, 1928, turned over to The Texas Company for development. The first test drilled at Caillou Island by The Texas Company proved the dome, being abandoned in anhydrite at 2974 feet.

Since completion of the new Caillou Island producer, there are now four of the seven Terrebonne Parish domes operated by The Texas Company producing oil, while gas production is established on a fifth. One of the remaining two has been proved as a dome, and on the seventh the first test, now drilling, has encountered several promising oil showings.

11 Producers Completed In Week at Darst Creek

Houston.—During the past week there were 11 new wells completed at Darst Creek, with the beginning of the next period of proration just ahead, and the rule in effect that wells must be in condition to be gauged not later than the third day preceding the first day of each month in order to participate in proration of the market outlet during the succeeding one-half month.

Magnolia Petroleum Company's T. Dix 5 came in flowing 50 barrels per hour at 2624 feet; its Richburg 1 flowed 200 barrels daily at 2625 feet; and Zedler 2 in the north end of the field was abandoned at 2817 feet.

Humble Oil & Refining Company's Denman 3-A came in flowing 60 barrels per hour at 2583 feet, and Denman 5-A was completed for 40 barrels per hour at 2606 feet.

Sun Oil Company's Knoblock 1 was finished as a 298-barrel well at 2594 feet. Empire Oil & Gas Company's Dowdy 2 swabbed 150 barrels, five per cent b. s. and water, in seven hours from 2633 feet.

The Texas Company's Henry Willie 2 swabbed around 1000 barrels daily at 2613 feet. Gulf Production Company's Dix-McKean 1 gauged 720 barrels daily at 2596 feet.

Stroube & Stroube finished R. Miller 1 for 500 barrels daily at 2627 feet. L. C. Turman completed R. Miller 2 for 200 barrels daily at 2634 feet.

Production Excess Now 252,573 Barrels Daily
(Continued from page 183)

change since the improvement last November. This commodity is bringing from 55 cents to 66 cents, with an average of about 60 cents prevailing.

Following are the outstanding production changes which occurred last week in the leading fields:

		Barrels
Gray County	Increase	1,450
Wilbarger County	Decrease	3,900
Balance of Pecos County	Increase	1,700
Winkler County	Decrease	2,550
Darst Creek	Decrease	1,400
Humble	Decrease	2,550
Pierce Junction	Decrease	3,100
Seminole	Decrease	1,000
Bowlegs	Decrease	2,450
Little River	Decrease	2,100
East Little River	Decrease	2,150
Earlsboro	Decrease	2,850
East Earlsboro	Decrease	22,000
St. Louis	Decrease	3,550
Oklahoma City	Increase	3,950
Sasakwa	Decrease	1,050
Santa Fe Springs	Increase	4,400
Long Beach	Increase	2,500
Ventura Avenue	Decrease	2,100
Elwood	Increase	2,100
Salt Creek	Increase	3,600
Eastern States	Decrease	2,850

H. K. Warren, formerly drilling superintendent for Carl B. King Drilling Company, has joined the Lucey Products Corporation as sales engineer at Oklahoma City, Oklahoma.

Agitation for Tariff on Crude Imports

Tulsa.—A general meeting of all Mid-Continent oil operators was called for Wednesday, January 29, at the Mayo Hotel, Tulsa, for the purpose of outlining a campaign for a taridff on foreign crude oil being brought into this country. Wirt Franklin, president of the Independent Oil Operators of America called the meeting.

It is Mr. Franklin's idea to get together as large a delegation as possible from the Mid-Continent oil region and to make a trip to Washington and there to swarm into the senate chambers as a united oil body to tell the senators that an oil tariff is wanted and demanded.

Ardmore, Oklahoma.—At a recent meeting the Southern Oklahoma Oil and Gas Association adopted a resolution embodying the opinion that the explanation offered by Humble Oil & Refining Company for its recent crude price cuts, was fallacious and of unsound reasoning. The resolution further insists that a tariff on crude oil and refined products imported into the United States be levied.

Operator members of the association state that producers of Southern Oklahoma have been cooperating in every way possible with producers and pipe line companies in other parts of the states of Oklahoma and Texas in prorating and holding down unnecessary drilling, with the result that wildcat drilling had held the crude production down to a point where oil was being withdrawn from storage in November and December. The resolution further points out, that since 80 per cent of the capital invested in petroleum companies is in the producing, transporting and refining branches, and but 20 per cent in marketing, an investigation of the spread between refinery and retail prices should be made.

Washington, D. C.—Demands that a reduction be made in the amount of oil imported by the larger oil companies were voiced at a meeting here January 23 of representatives of the leading producers in the Mid-Continent with E. B. Reeser, president of American Petroleum Institute.

It has been explained that the cut in price was not intended for the Mid-Continent field but was directed against California in an effort to enforce more effective curtailment, but aroused the resentment of the independent operators who telegraphed the Oklahoma senators asking for a congressional investigation of the price spread and also for the $1 per barrel duty on imported oil agitated before.

Louisiana--Arkansas Field Notes

Second Zwolle Extension Producer Makes Good Pumper

SHREVEPORT, La. — Extension of the eastern part of the recently opened Zwolle east field in Sabine Parish, Louisiana, by Ohio Oil Company's Bowman-Hicks 1, SW NW Section 35-8-12, which is looming as a good pumper, the first producer in that part of Zwolle since R. L. Gay, Trustee's Bowman-Hicks A-1, SW SE Section 34-8-12, came in last November 26 flowing more than 3000 barrels daily through a gate valve one-fifth open, provided the chief interest during the last week in North Louisiana.

In Arkansas Marine Oil Company's Thompson A-3, Section 10-18-13, Union County, Urbana district, completed at total depth of 3535 feet as the deepest producer in that state, continued the cynosure of eyes in that state.

Marine Oil Company's Thompson A-3, Section 10-18-13, six miles southeast of Champagnolle production, completed January 19 at total depth of 3535 feet in what is believed was the upper Trinity or a contact of the upper Trinity with the Woodbine and flowing 500 barrels daily by heads, later dropped to 300 barrels daily by heads. On January 26 the operators tried to get a four-foot core but obtained only six inches. The core showed only a little sand with red beds. It was swabbed and about two hours later made a head for three minutes. Five and three-fourths-inch liner is being set. It is hoped to make the output greater.

Meanwhile Shreveport-El Dorado Pipe Line Company is laying 12 miles of six-inch line from the Champagnolle field in Section 9-17-14 to the well and Lion Oil Refining Company is also planning a direct six-inch line to the new well from its refinery at El Dorado.

Observers estimate that approximately $250,000 has been spent in leasing in that area since the well was completed. However, Lion Oil Refining Company, which paid a reported price of $500 an acre for an 80-acre tract in the same section with the producer. Lion Oil Refining Company has made the only definite new location offsetting the producer, the new test being Ballard 1, SW NE Section 10-18-13. Simms Oil Company and Sun Oil Company are reported to be ready to make locations. Several old depleted gassers in the Urbana area drilled to 2600 feet also are expected to be deepened.

Zwolle

Ohio Oil Company has played a "waiting" game with its Bowman-Hicks 1, SW NW Section 35-8-12, three-quarters of a mile east by north of Gay's extension producer and apparently have a good pumper. This "waiting" game has been practised by Gay in the older part of the field with excellent results.

Ohio Oil Company's well on January 27 was standing almost full of oil after having bailed dry in chalk rock at total depth of 2405 feet and being swabbed. The first day it was allowed to stand oil rose about 200 feet in the hole and has been steadily rising since then. As there is some gas pressure noticeable it may duplicate Gay's Bowman-Hicks 5, Section 14-7-14, in the older part of the field which bailed dry in the lower part of the chalk rock at total depth of 2586 feet and a week later after the hole had filled with oil had enough pressure to make a head and blow-off connections. The well will be standardized at once. Surface elevation is 307 feet. The chalk was topped at 2392 feet, 6⅝-inch casing was set at 2385 feet and the hole cored to total depth of 2405 feet. Gay's producer to the southeast hit the chalk at 2405 feet with total depth of 2413 feet and a revised elevation of 320 feet.

Ohio Oil Company is also ready to drill in Bowman-Hicks 2, Section 33-8-12, almost a mile west of Gay's producer, having set 6⅝-inch casing at 2360 feet with total depth of 2384 feet. Gay is drilling in two tests in the older field, Sabine Lumber Company 3, Section 13-7-14 and Bowman-Hicks 6, Section 14-7-14, both of which had 8¼-inch casing set at 2090 feet just above the chalk rock.

Haynes Brothers will try a new procedure in Zwolle in Meyer 1, Section 28-8-12, where 6⅝-inch casing was set at 2280 feet after topping the chalk at 2288 feet with total depth of 2316 feet. They are breaking down rotary to drill in with cable tools. Olsan Brothers shot 11 quarts of explosive at 2465 feet in the chalk rock in Hooker 1, Section 27-8-12, a half mile north of Gay's producer, after attaining a depth of 2625 feet still in the chalk rock and bailing dry at several levels above. After the "shot" oil was reported to have risen 50 feet in the hole but had risen but little three days afterwards. The well may be put on the beam.

Conservation commission officials Saturday, January 25, officially gauged Gay's Bowman-Hicks A-1, the extension producer, which is flowing through 1¼-inch choke and reported the 24-hour gauge to be 3577 barrels of clean oil free of water.

Total pipe line runs to January 22 from the Bowman-Hicks A-1 of Cooke and Gay aggregate slightly in excess of 161,000 barrels.

Lion Oil Refining Company which owns a half interest with the Ruston Drilling Company in its holdings at Zwolle has also taken over the location made by Stovall Drilling Company in Section 31-8-12 on the Sabine Lumber Company holdings and have set surface casing at 100 feet. Arkansas Natural Gas Corporation has acquired approximately 400 acres in the eastern part of Zwolle, including 40 acres in SE Section 22-8-13, the east half of the NE quarter of Section 36-8-13 and the rest in Section 27-8-13.

Standard Oil Company paid S. L. Brannon and L. W. Nunn $12,000 for 80 acres in the north half of the southeast quarter of Section 32-8-12, known as the S. L. Winders lease.

It is also reported that Louisiana Oil Refining Corporation is interested with J. C. Tippett who is drilling Hughes 1 in Section 36-8-12 which is drilling below 350 feet.

Amerada Petroleum Corporation is reaming to set 6⅝-inch casing at 2024 feet in Section 33-8-12 after drilling slightly below 2250 feet.

Cartersville-Sarepta

The new 3150-3200-foot sand in the Cartersville-Sarepta field of Bossier and Webster Parishes, Louisiana, accounted for its fourth producer during the week when The Texas Company completed Henry Rose 3, in the southwest quarter of Section 31-23-11 at total depth of 3165 feet, making 150 barrels of oil by heads. The well has since increased its yield to around 200 barrels daily. This producer is a southern offset to the first completion in the 3150-3200-foot sand. Muslay Oil Company's Kilgore A-1 in that section which was completed making 218 barrels

daily through 2½-inch tubing in two feet of sand at 3164 feet.

Two new locations and two deepening operations were announced during the week for Cartersville-Sarepta. Dixie Oil Company made its debut in the Dixie field of Caddo Parish by making location for Dickson 1, Section 10-19-14. North Louisiana's new locations for the week totaled nine including two wildcat tests in northeast Louisiana. Joe Marr and associates have set 12½-inch surface casing at 130 feet in Maxwell 1, Section 35-3n-8e, Concordia Parish, and are shut down by high water. A. R. Willis and associates are drilling at 410 feet in Curry 1, Section 39-11-12e, Tensas Parish. Both these parishes have had tests that showed considerable gas at shallow levels.

Besides the one new location in Urbana there was only one other wildcat location made in south Arkansas during the week, Malloy and Company's Robertson 3, SW NE Section 6-18-15. One "shooting" job in Smackover and two new locations completed the list for that state.

Zwolle Leases Involved in $3,000,000 Deal

Shreveport, La.—Sale of 10,000 acres of leases in the eastern part of the Zwolle field of Sabine Parish, including Bowman-Hicks A-1, Section 34-8-12, the extension well, was consummated here Monday when Walter E. Cooke of Paterson, New Jersey, two-thirds owner, and R. L. Gay, one-third owner, transferred this block to Benedum & Trees of Pittsburgh, for a consideration of $3,000,000, one-third cash and two-thirds out of first production with an over-riding royalty retained by Cooke and Gay to all wells over 50 barrels daily production. Benedum & Trees were represented by A. F. Holliday, vice president. The 20,000 acres owned by Cooke and Gay in the older Zwolle field around Blue Lake where four producers are making 620 barrels daily, are not involved in the transfer.

Abandon Joint Deep Test At Cotton Valley

Shreveport, La. — North Louisiana's deepest test is in process of abandonment. It is Magnolia Petroleum Company's McCook and Hibbler 1, Section 22-21-10, Webster Parish, Cotton Valley district, which will be abandoned as a dry hole at 7006 feet.

While the test was carried in Magnolia Petroleum Company's name it is generally understood that practically all the larger companies operating in this territory aided financially in drilling which went into the lower Trinity formation and at one time gave promise of being a commercial oil well. Despite the fact that it is listed as a failure, of course the valuable geological data secured have been worth the money expended in the test.

Cotton Valley has considerable gas production and has accounted for three oil producers in the upper Trinity which is very lenticular in that area, at varying depths from 4400 to 4800 feet.

The McCook and Hibbler 1 last autumn cored 11 feet of a sand rich in a heavy oil from 6947 to 6958 feet. After considerable difficulty with bridges a string of 5¾-inch casing was set at 6947 feet, 75 sacks of cement being used. When plug was drilled salt water which had been encountered in a sand stratum just above leaked into the oil sand and the test was unsuccessful. Several subsequent cores were taken that showed gas. A broken sand was encountered from 6973 to 7002 feet, the formation being interspersed with pyrites. A test of this broken sand was dry and it was decided to abandon the well. The test started almost a year ago.

The impression generally prevails that another lower Trinity test in Cotton Valley will be drilled at an early date, the lessons learned in the McCook and Hibbler being expected to prove valuable in the second test.

Refinery Charging Capacity Being Materially Increased

THE new year gets under way with important new construction and expansion work in progress in the refining industry which indicates appreciable increase in crude charging capacity. Practically all of the major refining districts are affected by new plants building, expansion of facilities or mergers with consequent improvements at old plants.

Chief in importance from the standpoint of plants building is the announcement of a 5000-barrel plant to go into operation at Savanah, Georgia, and being erected by Mexican Petroleum Corporation of Georgia, a subsidiary of Pan-American Petroleum and Transport Company. The new refinery at Canton, Ohio, being erected by Allegheny-Arrow Oil Company, of 1200 barrels capacity is well under way and will include one Dubbs cracking unit. It was also announced during the month that Texas Pacific Coal and Oil Company would build a refinery on a site recently purchased near Lubbock, Texas. White Oak Refining Company plans construction of a 3000-barrel plant at Weswego, Louisiana, in conjunction with its stabilization plant and terminal facilities.

New Foreign Plants

Seaboard Oil & Refining Company with offices at Vancouver, British Columbia, Canada, a recently chartered corporation will erect a complete plant near Vancouver of 4000 barrels capacity, at a cost of one million dollars. In continental Europe Standard Oil Company of New Jersey, Gulf Refining Company and Atlantic Refining Company will erect a refinery at Point Jerome, near Le Havre, France. The New Jersey company will control the French refining company. In Spain the Spanish Oil Monopoly has asked for bids on the construction of a 700-ton capacity oil refinery to be located at Barcelona. A small plant of 50 barrels capacity was announced by Imperial Oil Company of Porto Rico, to be constructed at San Juan.

Expansion Work

Standard Oil Company of Ohio is installing two 6000-barrel vacuum distillation units at its Cleveland plant and at the Covington, Kentucky, plant of its subsidiary, the Latonia Refining Company, it is erecting a 2500-barrel tube and tank cracking unit and a 4000-barrel tube still. In California the California Northern Corporation announces that it will enlarge the capacity of its lubricating oil plant at Coalinga to 1000 barrels daily. Illinois Oil Company has completed remodeling of its old plant and is now operating its new pipe still and bubble tower installation, at Cushing, Oklahoma. Gulf Refining Company at its Port Arthur plant is increasing its cracking unit capacity from 52,000 barrels daily to 78,000 barrels through the addition of new facilities.

Mergers

With Sinclair Consolidated Oil Corporation officials, and executives of Prairie Oil & Gas Company inspecting the properties of Rio Grande Oil Company in Texas and California, impetus is given rumors concerning a consolidation of the three. U. S. Refining Company, with a refinery at Torrance, California, has purchased the refinery of American Refining Company at Hynes, California, and will operate. Quaker State has acquired the refinery of McKean County Refining Company, Farmers' Valley, Pennsylvania. Also in Pennsylvania the Pennsylvania Refining Company has merged with American Oils Works. Plant improvements were announced in connection with both mergers.

Resumptions

B. V. Hole, at Newcastle, Wyoming, will operate the old A. A. Carter plant. In Oklahoma, Caravan Refining Company and Electrol Refining Company are operating at Oklahoma City. Houston Oil Company has resumed operation at its Camden, Arkansas, plant.

Natural Gasoline Plants

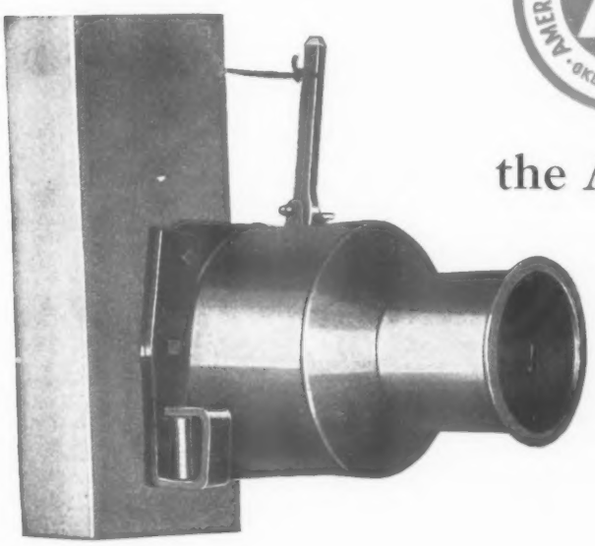
Equitable Gas Company is building a new plant at Rogersville, Pennsylvania. Empire Oil & Refining Company is building a 10 million foot plant in the Kenawa pool of the Greater Seminole area. Wirt Franklin Petroleum Corporation is building a new plant in the Oklahoma City pool. The California Gasoline Corporation is enlarging capacity at its Coleman, Texas, gasoline plant.

Fishing Tools Drilling Tools

AMERICAN IRON & MACHINE WORKS, INC. · OKLAHOMA CITY ·

Simple, Durable Economical

the American Automatic Cathead



This American tool is winning favor in the drilling world because its construction is simple, the parts durable and its operation very economical. All working parts are housed and mounted on the Cathead Spool, which is of a size that it can be bored out to fit any line shaft from seven and one-half inches down.

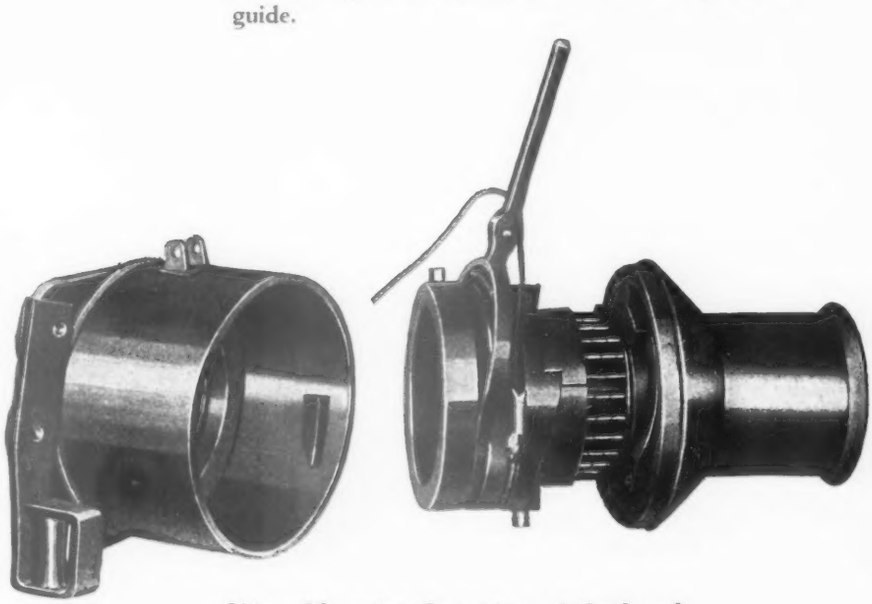
There are only eight parts as follows: Cathead Spool, Housing, Clutch, Clutch Bearing Sleeve, Roller Bearing, Yoke Lever, Jerk Line and Jerk Line guide.

Showing Cathead Assembled on Jackpost.

The American Automatic Cathead has a thirty-six inch stroke and can be engaged on quarter revolution of the line shaft. The clutches are operated similar to the Rotary Clutch with four point contact and two point disengagement. When engaged, the clutches have twelve square inches of clutching face.

It is so designed that all strain is equally distributed.

There is one point for greasing by Alemite.



View Showing Interior of Cathead

AMERICAN IRON & MACHINE WORKS CO.

Manufacturers of Oil Field Equipment

Oklahoma City, U. S. A.

AMERICAN OIL FIELD EQUIPMENT

For Sale By The Leading Supply Companies

American Releasing and Circulating Overshots
American Rock Bit Wrenches
American Milling Shoes
American Flexible Coupling for Rock Bit Lubricators
American Steel Tool Houses
American Steel Tool Boxes
American Forged Steel Wall Hooks
American Rock Bit Breakout Blocks
American Paraffin Bits
American Forged Steel Drill Collars
American Female Die Nipples
American Tapered Taps
American Forged Steel Subs
American Rotary Shoes
American Cone Fishing Baskets
American Steam Lubricators
American Side Tracking Mills
American Combination Reverse and Throttle Levers
American Steel Engine Foundations
American Automatic Cat Head
American Automatic Cathead Control Levers
American Rotary Milling Tools
American Myracle Sucker Rod Sockets
American Surface Bit Blades for Rock Bits
American Drill Pipe Float Joints
American Pump Manifold Check Valves
American Eccentric Releasing Overshot
American Casing Suspension and Blowout Preventer
American Lead Plug
American Rock Bit Cone Fishing Sockets
American Steel Whipstocks
American Inside Pipe Cutter for Drill Pipe or Casing
American Adjustable Steel Rig Braces
American Fish Tail Bits

News From Rocky Mountain Fields

Drill for Carbon Dioxide In Utah

Salt Lake, Utah.—An unique operation is starting on the Farnham dome, near Price, Utah, by the Carbon Dioxide & Chemical Company of Seattle, Washington. This company is seeking to develop a supply of gas for the manufacture of "dry ice." Utah Oil Refining Company drilled a well on the Farnham dome which developed an open flow of 12,000,000 cubic feet of gas with a rock pressure of 900 pounds at a total depth of 3100 feet. It was almost pure carbon dioxide gas and would not burn.

Contract for drilling the well has been let to the Fulton Petroleum Company of Conrad, Montana. Camp has been installed and rig erected and drilling will begin shortly.

Farnham dome is 12 miles east from Price and the chemical company plans to lay a pipe line from the field to Price where the dry ice will be manufactured. It is understood that the pipe has been ordered and work will begin on the line by early spring.

The manufacture of dry ice has increased greatly in the last several years. The New York Dry Ice Company has 16 factories in the eastern states and cannot begin to supply the demand. This company announces that it will have 10 more plants in operation by next June.

Dry ice is used extensively in the refrigeration of fruits, vegetables, ice cream and other perishable commodities while in transit. A small quantity placed in a refrigerator car will keep the contents cold the entire distance across the United States without reicing and will also conserve space.

A cube of dry ice, six inches, may be placed on a table in a dwelling and it will keep the room cool for several days. It will evaporate completely and leave no stain.

Continental Oil Company has a large quantity of carbon dioxide gas near Walden in Northern Colorado and has been considering the installation of a plant at Walden.

Idaho Falls, Ida. — The California Company, operating subsidiary in the Rocky Mountain states of the Standard Oil Company of California, has abandoned its deep test in southeastern Idaho, Sorenson 1, Section 33-3n-41w, at 3780 feet. Hole was bottomed in the Tensleep and carried water.

Salt Creek

Casper, Wyo. — Midwest Refining Company has succeeded in shutting off heavy flow of oil in the third Sundance sand in its deep test in the Salt Creek field and is now underreaming to the bottom of the hole at 3065 feet. Location is in Section 35-40-79, near the center of the field on a lease owned by the Midwest Oil Company. This well is perhaps the most important test in the Rocky Mountain region as it is intended to cut all of the potential oil sands in the field and will be continued to the granite. It is believed that all the possible oil bearing sands can be penetrated at no greater depth than 5500 feet.

North Casper Creek

Casper, Wyo.—All State Oil Company has been shut down at North Casper Creek, 25 miles northwest of Casper, for the last three weeks on account of adverse weather conditions. As soon as the weather moderates, the company will resume drilling in No. 3 and also install a power and put Nos. 1 and 2 on production. The North & South Railroad company is installing a siding near the lease for the shipment of the production. It is about two miles from the field to railhead and a pipe line will be laid by the oil company early next spring. The company is reported to have a market for the oil in Minnesota.

Norwood

Thermopolis, Wyo.—California Exploration Company, subsidiary of the Honolulu Oil Company, has abandoned its test near here on the Norwood structure, Section 31-48n-89w, at 2711 feet. The well had a showing of oil in the top of the Madison at 2511 feet. At 270 feet in the Madison formation, it developed water and drilling was suspended.

Oregon Basin

Cody, Wyo.—The Texas Production Company has just completed a 600-barrel oil well in the Oregon Basin field southeast of Cody about 13 miles. The well is known as Sonners 1, Section 29-51-100. The pay is coming from the lime at 3623 feet. It is the best well completed in the Oregon Basin field for several months.

Pilot Butte

Riverton, Wyoming.—Kinney-Coastal Oil Company is still underreaming to lower 8¼-inch casing to bottom of hole at 3362 feet in its deep test in Section 22-3n-1w, in the Pilot Butte shallow oil field about 30 miles northwest of Riverton. This well blew in several months ago from a stray sand above the Muddy with an open flow of more than 60,000,000 cubic feet of gas, killing one of the crew. It is planned to drill it to the lower horizons with the hope of finding oil.

Teapot Dome

Casper, Wyoming, Wyalta Oil Company has moved drilling machine one location east of Smith 1, Section 11-38-78, east of Teapot Dome and is rigged and ready to start drilling as soon as there is an improvement in weather conditions. The thermometer has been registering 45 degrees below zero at the location for the last three weeks.

Grand Junction, Colorado. — Fulton Petroleum Company of Conrad, Montana, has been granted a franchise for the installation of a natural gas distributing system in Grand Junction. The gas supply will be taken from the Garmesa structure about 25 miles from Grand Junction. Work will be started on the pipe line in early spring.

Sugar Creek Test Being Watched With Interest

Shreveport, Louisiana. — Louisiana operators and followers of John Y. Snyder, discoverer of the Homer, Haynesville, Elm Grove, Bellevue, and Sligo structures, are devoting close attention to the progress of Triangle Drilling Company's current test at Sugar Creek, Claiborne Parish, about 15 miles southeast of the Homer field. Kilpatrick 1, located in Section 7-19-5, is the ninth of a series of tests drilled on the Sugar Creek structure by this prominent group of wildcatters, which includes J. S. McCullough, pioneer of the Infantas field in Colombia, John Y. Snyder, prominent local geologist, A. J. and W. H. Hodges, L. M. Moffett, also a veteran of early campaigns in Colombia, H. L. Skannal, and S. L. Herold. Seven of these wells tested only the Blossom sand, productive at Haynesville and elsewhere; but Keen 1, located in the same section as the well now being drilled, encountered a showing of oil in a porous lime rock at around 4500 feet, at which point drilling was suspended. A subsequent test drilled by the Dixie Oil Company at a location about 10 miles north penetrated a sand body just below this lime rock. Correlation of the two well logs indicates that the Keen well stopped just a few feet short of this likely formation, which will be further explored in the Kilpatrick well.

This well has reached a depth of 4200 feet, and its owners plan to set nine-inch casing at around 4300 feet. The above-mentioned lime rock and sand body, which are included in the Trinity series, will be tested upon the resumption of drilling; and, if production is not found, drilling will be continued to a minimum depth of 5000 feet, according to contract between the Triangle Drilling Company and the Standard Oil Company of Louisiana and the Palmer Corporation, who are sharing in the expense of this well. Presumably, with the hole in good shape and with casing of large diameter set at so great a depth, the interests co-operating in this venture may be expected to continue drilling until formations not hitherto penetrated by the drill have been tested.

News From California Fields

BRAD MILLS, *Staff Representative, Los Angeles, California*

Wilbur Working With Operators on Kettleman Hills Curtailment

LOS ANGELES.—Official Washington, through the Department of the Interior, has taken cognizance of the situation at Kettleman Hills and officials of this branch of the government are working with operators and conservation leaders to reach an agreement that will hold this light oil field in check. Ray Lyman Wilbur, Secretary of the Interior, is now in California and is taking a very active part in the curtailment work.

When the agreement was made last summer to drill wells to the Temblor sand and shut them in until July 1, 1931, the instrument was heralded as one of the achievements of a generation in conservation circles. It was an extremely important accomplishment, but it has developed that the agreement had one or two weak points. It was without doubt the best bargain that could be driven, due to the varied interests in the field and the fact that some of the land was owned in fee. One company reserved contractual stipulations, while another signed with the understanding that if lessors on the fee land insisted that wells should be produced, their wishes would be granted.

The completion and operation of Petroleum Securities Company's Felix 1 is the immediate cause of the most recent trouble. Pressure was brought to bear on the lessees by the lessors and the well was brought in and produced.

The original agreement permitted any operator to open up his wells when there was an unnecessary drainage. Since the company which completed the well held chiefly responsible for the new problem was within its rights, because of the reservation to produce the well if forced to do so, offsetting companies are apparently automatically within their rights if they elect to produce surrounding wells. When the agreement was signed, little or no trouble was expected from lessors on fee lands.

Washington considers the situation as serious, but California operators are less alarmed. Department of the Interior was a leader in the movement to reach the agreement now supposedly in force and is anxious to continue as nearly under the original plan as possible.

The crude market is being brought into the situation, fear being expressed that if production at Kettleman Hills climbs too high, heavier oils will be almost worthless. This crude contains more than 85 per cent gasoline and producers of oil which is now responsible for the bulk of the gasoline marketed are plainly worried over the possibilities of such a dangerous area.

A special committee is working on a cooperative plan of development, but has not worked out all details of the proposed program to be submitted to the general committee. These committees will meet this week with Secretary Wilbur.

Judge E. D. Reiter, a member of the committee that drew up the present agreement, stated that he is in favor of continuing under the original plan if possible. If a new plan must be formulated, Reiter said he would favor the following program:

Allow each operator to drill a certain number of wells under the direction of an umpire. Produce all wells at the same rate—say 500 barrels. Edge wells that will not produce 500 barrels are not handicapped in any way, because they are already producing at a maximum rate. Leading marketing companies will decide upon the quantity of oil the market can stand from time to time. If it is 50,000 barrels, the field will be held to this figure. Wells will be spotted correctly over the North Dome so that undue drainage will not result. Arrange for a simple method of control in the field.

Judge Reiter explained that the above plan was secondary to the one now in force and that he would help to keep the original agreement in force. He advanced the theory that Kettleman Hills would be a factor for years and

Wilbur Says Kettleman Hills Control Essential to Industry's Stability

LOS ANGELES.—In an interview with a representative of THE OIL WEEKLY, Secretary of the Interior Ray Lyman Wilbur stated that it is absolutely necessary to work out a sensible plan of development at Kettleman Hills, if the oil industry in California and elsewhere is to maintain an even keel.

He said that rapid development of the field and subsequent waste of natural gas would constitute a great loss and seriously weaken a medium through which California can become one of the greatest industrial states.

Wilbur stated that if the operators do not enter into some kind of voluntary agreement to prevent the waste of oil and gas the State of California may force its conservation policy down their throats.

It was pointed out by the secretary that Kettleman Hills can furnish nearly all of California's gasoline needs and intensive development would completely upset the market. He stated that it might be possible to arrive at some method of control, either through a combination of ownerships, the power of the government through its large interests and its rights to control wastage, or the California conservation law. Wilbur said he favored a plan of cooperative developments. He said that it might be impossible to hold production to the limits defined by the original agreement but a reasonable development program could save the situation and hold production within market demands.

The Secretary will attend a meeting Tuesday afternoon at which the original committee appointed last spring will present their plans for holding the field in check.

something should be done to balance production with market requirements.

Secretary Wilbur has stated that the entire petroleum world is watching Kettleman Hills and that production must be controlled.

State of California has filed a suit against all operators on the North Dome at Kettleman Hills, seeking to stop gas waste. The recent favorable decision in the state supreme court relative to the suit against Santa Fe Springs operators has encouraged the state and it will continue its fight to eliminate gas waste in all critical fields. It is possible that the state will be able to force a shut-in of all wells producing, other than those specified in the agreement.

Persistent efforts of the state to stop gas waste at Santa Fe Springs may ultimately result in the solution of the overproduction problem in this field. The case against all operators goes to trial again February 3 and it is believed that the state has better than an even chance of getting a restraining order.

Extension agreements are being circulated and operators are signing at a satisfactory rate. The extension calls for 120 days, however, and a few companies want to sign for only another 90 days. The 120-day clause was inserted because it was felt that the danger period will pass before the termination of the extension.

The crude market depends upon the success of the extension. Little storage room is available and major operators will not build new storage just to care for a temporary overproduction. A radical price reduction will be made if curtailment is not continued.

The committee appointed to arrive at a distribution of a certain percentage of proceeds of oil and gas sold from wells allowed to produce at Kettleman Hills have not been able to arrive at a figure for December production. Under the terms of the agreement, anywhere from 10 per cent to 25 per cent of the value of the gas and oil was to be distributed to other operators as compensation for shutting in their wells.

Inglewood

Los Angeles.—After flowing at the rate of 2500 barrels, Taylor Drilling Company's Murphy 1, located in the Inglewood townlot sector of the Potrero field, sanded up and is still off production. Blowing in from a total depth of 4830 feet while the cement plug was being drilled out preparatory to a test of the 8¼-inch water string at 4785 feet, the well gave a much better demonstration than first producers completed around 3800 feet. This deeper zone shows much more promise than the original producing sand, although it apparently has many of the upper formation's faults. Associated Oil Company has made location for a second well on the property of the Potrero Country Club. The original well completed on this property is producing about 50 barrels of 44 gravity oil.

Kettleman Hills Well Has Field's First Show of Salt Water

Coalinga, California.—Although maximum production of Petroleum Securities Company's Felix 1, recently completed on the north slope of the North Dome at Kettleman Hills, probably would not exceed 2000 barrels, the well has been beaned down slightly to prevent trouble from sand and salt water. Gravity of the oil was about 54 at the beginning of the production test, but increased to around 60 after a smaller bean was installed. A distinct trace of salt water was found, this being the first well to produce other than fresh water. A bull plug blew out during the test, allowing the well to flow wild for a short time. Only sanding up during this wild period prevented serious trouble. Felix 1 was completed at 7276 feet and is producing from about 700 feet of sand. A string of 8⅝-inch casing was cemented at 6583 feet. Gas production is about 60 million cubic feet. While the well was allowed to flow into the air, none of the oil fell back to the ground. Evaporation was complete.

Associated Oil Company has established a new record in Whepley 1, having cemented a string of 13⅜-inch casing at 5578 feet. The record string was run without a mishap, the hole apparently having been in unusually good condition and almost straight.

Ohio Oil Company has plugged back from 8046 feet to 6950 feet in Smith 1, a South Dome test, and will try for production at this level and also around 6700 feet. Smith 1 has been an unusually expensive test, costing above $400,000.

175 Drilling Wells Active At Santa Fe Springs

Los Angeles—With two more sudden bursts of drilling due before a peak should be established, Santa Fe Springs is still on its upward march. These two periods will come at the end of January and the middle of February and if as many wells are completed as are listed for completion, an absolute peak in the lower Clarke zone should be reached about February 16.

Despite the large number of completions at the end of past two weeks periods, more than 175 drilling wells are active. Most of these will be completed while the field potential is falling, but unusual developments in either the Clarke zone of the new Hathaway sand around 9000 feet may change the situation.

The Clarke zone has not been as uniformly productive on inside leases as earlier estimates indicated and average initial production of these wells has been somewhat lower than expected.

Edge wells have begun to show the effects of a lowered gas pressure, while outside completions average much lower than first producers completed on this remote strip encircling the field. Production was built up to almost 100,000 barrels from edge wells, but outside completions are now mediocre.

Gas-oil ratio has become considerably higher, an occasional completion making as much as 5000 cubic feet of gas per barrel of oil.

The peak in every other sand has come from two weeks to six weeks later than expected and the Clarke zone may climb until after February 15. The peak has already been set ahead more than a month.

North Belridge Formation Resembles Kettleman Hills

Bakersfield, California. — Geologists believe that the discovery of the Temblor, or lower Miocene, sand in the Belridge Oil Company's No. 15, Section 26-27-20, in the North Belridge field, may change the entire oil map of this part of the San Joaquin valley. The Temblor sand was found at about 4960 feet, following the cementing of a string of 6⅝-inch casing at 4934 feet. The hole was continued to 5088 feet, every core taken from below the top of the sand having shown a heavy cut in acetone. The formation resembles that found at Kettleman Hills and the oil is also very similar. The sand is pale and without experience gained at Kettleman Hills might be regarded as unimportant. A smaller string of casing will be run and cemented on top of the Temblor, preparatory to a production test. The company has assembled one of the heaviest Christmas trees ever placed on a well. Gas pressure was extremely high while drilling through the oil sand.

Universal Consolidated Oil Company drilled a well to a point below 4000 feet several years ago in this district but abandoned the well after a blowout. Little was known of the Temblor sand at that time and it has developed that the original deep well may have tapped the formation. It was the early custom to shy away from a situation which was regarded as dangerous and not assuring returns equal to the risks involved. The extremely light oil at Kettleman Hills gives a vast area at Belridge and Lost Hills a chance for deeper production.

Oil Well Causes Zoning Controversy at Venice

Los Angeles.—Rezoning that part of Venice which supposedly lies within the producing limits of the new field recently opened up by Ohio Oil Company is much more of a problem than originally supposed and it may require several weeks for the Los Angeles Planning Commission to work out all details. Venice lies within the corporate limits of Los Angeles, although often regarded as a separate city. Most property owners in the probable trend of production are eager to have present restrictions set aside, while those outside the limits of production and particularly those whose

We are grateful for STATISTICS

Accurate records, maintained by Engineering and Statistical departments, have enabled "Quality Equipment" to come into its own. Gone forever are the days of careless selection of equipment used by the Petroleum Industry.

Handling "QUALITY PRODUCTS" only, we naturally welcome the insistence of the Industry for higher quality.

One glance at our list of manufacturers settles any question as to where we stand.

AXELSON MACHINE COMPANY
Sucker Rods, Pull Rods, Working Barrels, Etc.

DONOVAN BOILER WORKS
Oil Country Boilers and Tanks

BEAUMONT IRON WORKS COMPANY
Dreadnaught Rotary Drilling and Pumping Equipment

FRICK-REID SERVICE RUBBER BELTING
Our Own Specifications

JONES & LAUGHLIN STEEL CORPORATION
Tubular Goods, Seamless and Lapwelded

J. P. RATIGAN
"Sure Grip" Line of Pumping Equipment

NATIONAL TRANSIT PUMP & MACHINE COMPANY
Pumps and Pipe Line Equipment

WILLIAM POWELL COMPANY
Valves for the Oil Industry

JOSEPH REID GAS ENGINE COMPANY
Two and Four Cycle Gas Engines, Pumping Powers, Refinery Equipment

JOHN A. ROEBLING'S SONS COMPANY
Wire Lines and Welding Wire

ROSSENDALE-REDDAWAY COMPANY
"Camel Hair" and Canvas Stitched Belting

WALWORTH COMPANY
Fittings and Valves for all branches of the oil industry

WHITLOCK CORDAGE COMPANY
Manila Cordage, including Drilling Cables, Bull Ropes, Cat Lines, Etc.

FRICK-REID
SUPPLY CORPORATION
Pittsburgh, Pa. Tulsa, Okla.
and Branches

livelihood is derived from beach visitors are opposed to a cluster of derricks in such a locality. As it requires only the unanimous consent of property owners affected, it looks as if rezoning will be a reality. Ohio Oil Company is drilling Recreation Gun Club 2 and other wells will be started as soon as permission is granted. Five applications have been filed to drill on restricted tracts.

Test of New Richfield Sand Not Encouraging

Los Angeles.—A new deep sand in the Richfield field has been found in Weber and O'Brien's Brown 1, but with strict secrecy enshrouding the test, reliable information has been very difficult to obtain. The well was tested some time ago at about 4635 feet and again at around 4675 feet, but commercial production was not obtained in either instance. The hole was drilled to some point below 5000 feet and a string of 4¾-inch casing run for the production test. The well was swabbed but failed to flow, giving the new sand a very doubtful appearance.

Wheeler Ridge

Bakersfield, California.—Standard Oil Company is testing a deep sand found between 6700 feet and 6800 feet in K. C. L. 36, an important test in the Wheeler Ridge field, and if production is obtained light oil possibilities in this district are considered good. The oil obtained from cores near the bottom of the hole was about 46 gravity and a much better product than the heavy grades produced from the shallow sands. A pressure of almost 2000 pounds was required to cement the water string at 6708 feet. If the gas flow proves to be coming from a major sand, rather than a small pocket, a flowing well should be obtained.

New Elwood Producer Flows 3500 Barrels

Santa Barbara, Calif. — Barnsdall Oil Company has completed Luton-Bell 11, the new Elwood producer being the first completion in several weeks. Initial production was 3500 barrels of 38 gravity oil from 3612 feet. The 10¾-inch water string was cemented at 3340 feet, with a 6¼-inch liner running from the shoe of the casing to bottom of the hole. Every well drilled on this lease has been a large producer and all have come in without mishap.

Huntington Beach

Huntington Beach, California. — Superior Oil Company will drill a deep test in the townsite sector of the Huntington Beach field if plans are completed for a reduction of royalties, and other arrangements can be made to offset the risk in drilling such a well.

Nebraska Still Hopes for Oil and Gas Production

TULSA.—While the search for oil and gas production in Nebraska has so far been disappointing, hopes are still held by residents of the state and a number of outsiders, including several prominent geologists, that it will be found.

The State of Nebraska several years ago voted an offer of $25,000 for the first oil or gas well, which is still unpaid. Of this sum, $15,000 goes to the operator completing the first 50-barrel oil well in the state, and $10,000 to the first operator drilling a gas well that makes more than 500,000 cubic per day.

There are many who believe that the bonus may be paid during 1930. During 1929 the state experienced its greatest activity from an oil and gas exploration standpoint. At one time there were six drilling tests in the state. The year also saw considerable leasing and blocking. This occurred as a result of the northward spread of drilling in Western Kansas. Several favorable looking structures have been located by core-drills and a number of these should be tested during 1930.

As each well is drilled the hope is entertained that it may prove to be successful, but all things considered, the outlook for oil and gas production in Nebraska cannot be said to be the brightest, and companies are not flocking into the area in large numbers. However, they are all watching the drilling activity with interest.

Many oil shows, and many oil seepages have been reported but this has usually been iron rust, so imitative of oil. Iron rust imparts an irridescent film precisely like oil. Carbon acid gas is freely found in the state and when water carrying it in solution reaches the surface in seeps, pools, springs, etc., the oxygen in the air has the effect of developing iron rust. However, several oil showings have been found and evidence of gas in artestian water wells have been discovered.

Topography and Geology of Southern Nebraska

Southern Nebraska is considered the most likely oil producing sector of the state, since it is along the north line of Kansas. It has received the major portion of all drilling and leasing, with some being spread out along the Wyoming line. The most interest is being shown in the central part of Southern Nebraska, north of the fields in Russell and Ellis County, Kansas.

Geologists have for more than 50 years been studying the structures of Nebraska. Bed-rock formations exposed range from the Carboniferous period of the Paleozoic age to the Tertiary rocks. The formations consist mostly of limestone, chalks, shales, clays and sandstone. The oldest rocks are exposed in the southeastern portion of the state, and are overlaid in the west by a succession of newer formations.

In Southern Nebraska various formations of Cretaceous age lying unconformably on Carboniferous formations, underlie most of the area, and are extensively overlain by Tertiary and Quanternary deposits. The latter two formations originally covered the entire area, but are now removed in the deeper valleys. Deep well tests have revealed the underground formations as being of sedimentary origin, lying nearly level in a succession of underspread sheets. Red beds are thought to underlie Western Kansas.

The general topography of Southern Nebraska shows the formations lie nearly horizontal with a general westerly dip, interrupted near Cambridge, by a low uplift or arch, which develops in Northern Kansas and extends northwest across Nebraska. East of this anticline is a syncline, thence eastward the strata rises gradually.

Southern Nebraska is a part of the Great Plains area. It covers portions of three fairly distinct physiographic regions, namely, the high plains or table-lands, the loess plains or prairies, and the sand hills. The higher plains slope eastward at about eight feet to the mile. The loess plains are relatively smooth with little water drainage. There are steep, long banks where water has cut into them. The sand hills region extend from the north central part of the southwest corner. These are made up of rounded sand dunes, ridges, valleys and basins.

Long Beach

Long Beach, Calif. — An occasional large completion in the shallow sands between 4000 feet and 5000 feet in the Long Beach field and increased activity on the southeast flank of the structure have about offset the inactivity in some parts of the area. Active drilling wells total 100, with active locations and rigs standing at 36. Nearly 75 producing wells have been shut in to bring leases down to their allowable totals. Of this number, shallow producers predominate.

Midway Wildcat

Taft, Calif.—Drilling in shale at 8610 feet, Standard Oil Company's Mascot 1, Section 26-32-23, has become one of the most interesting wildcats in California as well as the deepest well ever drilled north of the Los Angeles basin. Located in the extreme edge of the Midway field, the well has an important bearing upon deep production over a wide area.

Interesting Field Statistics of Venezuela

SUMMARY OF ACTUAL, SHUT IN, AND POTENTIAL PRODUCTION, VENEZUELA

Company—	Actual	Shut In	Potential
AMBROSIO-LA ROSA-PUNTA BENITEZ			
Venezuelan Oil Concessions	70,000	5,300	75,300
Lago Petroleum Corporation	15,950	8,550	24,500
Venezuela Gulf Oil Company	25,275	0	25,275
Sub-total	111,225	13,850	125,075
LUGUNILLAS FIELD			
Venezuelan Oil Concessions	55,000	5,000	60,000
Lago Petroleum Corporation	76,000	54,000	130,000
Venezuela Gulf Oil Company	77,000	23,000	100,000
Sub-total	208,000	82,000	290,000
OTHER FIELDS			
Caribbean Petroleum Company, Mene Grande field	55,000	20,000	75,000
Venezuelan Oil Concessions, La Paz field	100	2,900	3,000
Concepcion field	0	5,000	5,000
Colon Development Company, Rio Tarra field	1,100	23,900	25,000
Rio deOro field	0	100	100
Los Manueles field	0	100	100
British Controlled Oilfields, El Mene field	6,400	0	6,400
Media field	0	150	150
Creole Petroleum Corporation, Totumo field	0	1,500	1,500
Dabajuro field	50	2,000	2,050
Quirequire field	50	6,000	6,050
Richmond Petroleum Company, Venezuela, Urmaco field	200	1,800	2,000
Tocuyo Oilfields, Ltd., Chichiriviche field	150	2,350	2,500
Central Area Exploitation Company, Hombre Pintado field	100	50	150
Bermudez Company, Guanoco field	1,400	400	1,800
Sub-total	64,550	66,250	130,800
Grand Total	383,775	162,100	545,875

[1]SUMMARY OF RIGS IN OPERATION, VENEZUELA

Shell Subsidiaries—	
Venezuela Oil Concessions	25
Caribbean Petroleum Company	5
Colon Development Company, Ltd.	6
	36
Venezuela Gulf Oil Company	17
British Controlled Oilfields, Ltd.	6
Creole Petroleum Corporation (Standard Oil Company of New Jersey)	6
Richmand Petroleum Company (Standard Oil Company of California)	5
California Petroleum Exploration Company (Standard Oil Company of Calif.)	1
Lago Petroleum Company (Standard Oil Company of Indiana)	4
Tocuyo Oilfields, Ltd.	4
Societe Francaise de Rechreches au Venezuela	3
Belgo-Venezuelan Oil Corporaiton	1
Union Oil Company of California	1
Total	84

[1]Includes certain wildcat operations not embraced in statistics referring to producing or proven fields.

Geophysics Responsible for 14 New Fields in Gulf Coast

(Continued from page 146)

east side of the dome, which is shallow. Further development will likely be slow.

Port Neches

As at Hankamer, the first well drilled at Port Neches, western Orange County, was an oil producer. It was the Texas Company's Kuhn 1, located in the M. E. Hall survey, about mid-way between Spindle Top and Orange fields, and three miles north of Port Neches on the Neches River. That well came in May 9, 1929, flowing 1900 barrels of 21.5 gravity pipe line oil daily through a three-quarter-inch choke from sand at 3140-60 ft. At the end of the year that well was still flowing and had already produced over 100,000 barrels of oil The Texas Company, which largely controls the field, completed two other wells at Port Neches during 1929, both as producers from the original sand, and by the close of the year total recovery of the field was nearly one-quarter million barrels. Port Neches, like Hankamer, is apparently a non-salt-dome field. It was found by The Texas Company using seismograph in 1928.

Black Bayou

Black Bayou, located in western Cameron Parish, Louisiana, was found by seismograph by Shell Petroleum Corporation in 1927, and a dozen wells have been drilled there by that company. The discovery well was Watkins 9, located on the southwest side of the shallow dome, in Section 18-12s-12w. It came in as a 30-barrel pumper at 981 feet on April 29, 1929, producing 19.5 gravity oil. Additional shallow production has been obtained, but production has also been developed from sands around 5000 feet deep. Black Bayou produced 26,350 barrels in 1929.

White Castle

Shell Petroleum Corporation is also sole operator on White Castle dome, Iberville Parish, which it discovered by seismograph in 1927. Commercial production was established for the first time when Wilbert 3 in Section 8-11s-12e came in flowing 21 gravity crude from 5836 feet about October 10, 1929. Only two tests had previously been drilled at White Castle, one of which went into dome formation. White Castle production in 1929 amounted to 18,450 barrels.

Bayou Blue

Bayou Blue also is located in Iberville Parish. It was discovered by seismograph by Calcasieu Oil Company in 1926. Presence of a dome was proved there late in 1928, but first oil production was not obtained until about September 20, 1929, when Standard Oil Company of Louisiana's Wilbert 3 in Section 74-9s-10e came in flowing 15 barrels 19 gravity oil daily at 1903-25 feet. Later in the year the same company's Schwing 2 was completed as a 400-barrel well at 3590 feet. Bayou Blue produced 10,900 barrels in 1929.

Port Barre

Port Barre, St. Landry Parish, is farthest inland of all the South Louisiana areas classed as Gulf Coast domes. It was discovered by Gulf Refining Company in 1926 through seismograph shooting. The discovery well was The Texas Company's Botany Bay Lumber Company Fee 1, located 8100 feet south and 3200 feet west of the northeast corner of T. 6s-R. 5e. It came in the latter part of February, 1929, at 3765 feet flowing 800 barrels of 23.5 gravity crude daily. The Texas Company has completed one other producer there and Gulf Refining Company has completed two. Port Barre production in 1929 amounted to approximately 40,000 barrels.

Four of the new South Louisiana fields are located in Terrebonne Parish, and are being developed by The Texas Company, which acquired them from the Louisiana Land & Exploration Company. The latter discovered each in 1928 by seismograph. These domes are Bay St. Elaine, Dog Lake Bayou, Lake Barre and Lake Pelto.

Bay St. Elaine

Bay St. Elaine dome, otherwise known as Bay Coon Road, gave up its first production when The Texas Company's first test there, Bay St. Elaine 1, located in Section 17-22s-18e, Terrebonne Parish, came in as a 20-million-foot gas well at 690 feet, showing 300 pounds pressure. Two other wells were drilled there in 1929, one being completed as another gas well, and the other being abandoned in salt around 2300 feet.

Dog Lake Bayou

The first well drilled at Dog Lake Bayou was also a producer. It was The Texas Company's Dog Lake Bayou A-1, located in Section 6-22s-16e, Terrebonne Parish. It came in the latter part of May, 1929, flowing 10 to 15 barrels daily at 1056-62 feet. The only other test completed there in 1929 hit salt around 1700 feet. A third test is now drilling below 4500 feet. Dog Lake Bayou produced around 3800 barrels in 1929.

Lake Barre

Lake Barre so far has been the most prolific of the four new Terrebonne Parish fields. The first test there proved the dome by going into salt around 850 feet, and the second discovered oil production. The discovery well, The Texas Company's Lake Barre A-2, located in Section 30-21s-20e, came in September 23, 1929, flowing 1680 barrels 27.5 gravity pipe line oil daily through a one-half-inch choke, showing 500 pounds pressure, the production coming from a sand at 3835-49 feet. The Texas Company is now rigging up to drill the third test of the field. The lone well of Lake Barre produced around 43,000 barrels in 1929.

Lake Pelto

Lake Pelto also promises to be an important field. The only test that has been drilled there, The Texas Company's Lake Pelto B-1, located in Section 8-23s-18e, Terrebonne Parish, came in about July 15, 1929, flowing 400 barrels 17 gravity oil daily from sand at 1250-1288 feet. That well had produced nearly 25,000 barrels by the close of 1929. The Texas Company is now drilling around 3000 feet in its second test of the field.

Geophysical Discoveries in Texas Gulf Coast in 1929

Area	Location by Surveys	Discovery Company and Method	Remarks
BRAZORIA COUNTY			
Sandy Point	Inc. W. Hall Nos. 10 and 11 west end	Gulf Prod. Co. — Torsion	Undrilled. Located five miles east of Nash dome and less than mile east of Brazos River.
Danbury	Henry Austin, H. T. & B.	Shell Pet. Corp. — Seismic	First test still drilling; now below 3600 ft. At 1567-77 ft screen was set and well swabbed around 50 bbls. 22 gravity oil daily.
Pledger	W. Coirson, T. Gray and J. Moore	Humble — Torsion	Undrilled. Is 3½ mi. east of Pledger, 8 mi. west of W. Columbia.
Mustang Mound	Eurasmus Little	The Texas Co. — Torsion	Recent prospect. Likely to be drilled within few months.
CHAMBERS COUNTY			
Oyster Bayou	Carmel Ramon, Robt. Oliver, Key West Ir. Co. C. E. D. Co. No. 2	Rycade Oil Corp. — Seismic	Miocene high said to be present. Undrilled.
FORT BEND COUNTY			
Clodine	John Fredirck	Gulf Prod. Co. — Seismic	Is 3½ mi. sw Clodine. First well, Gulf's Brazos Valley Irrig. Co. 1, now drilling around 2000 ft.
Rosenberg	Lester E. Cross	Humble O&R Co. — Sesimic	Only test, Humble's Miller 1, was abandoned in hard sand at 5371 ft in Aug., 1929; no important showings. Location 3½ mi. w Rosenberg.

Richmond	J. Kuykendall	Grayburg Oil Co.	Torsion	Grayburg's R. F. Ransom 1, s of Richmond, only test drilled, was abandoned Oct., 1929, at 4333 ft; no important showings.
GALVESTON COUNTY				
Hitchcock	W. H. Jack Jas. Butler	Shell Pet. Corp.	Seismic	Undrilled but rumored as favorable prospect. Would probably be structural condition rather than salt dome.
San Leon	J. W. Little A. Edward	Humble O&R Co.	Seismic	Undr lled.
HARDIN COUNTY				
Grigsby	Center of E. Grigsby	Petty Pet. Co.	Torsion	Undrilled. Is 7 mi. e of Saratoga. Structural condition present, but no salt dome likely unless very deep.
HARRIS COUNTY				
Cedar Bayou	Hannah Nash, Geo. Ellis	Shell Pet. Corp.	Seismic	This prospect is several years old and has not been regarded as particularly promising. Shell, however, became sufficiently interested in 1929 to takes leases following seismic work. A miocene high, rather than salt dome, is said to be present. Undrilled.
Eureka	John Flowers	Humble-Navarro	Torsion	First tst, Buffalo Oil Co.'s Beall 1, now drilling below 2000 ft.
JACKSON COUNTY				
Francitas	J. Powers, Eldridge, J. R. Foster.	Shell Pet. Corp.	Seismic	Undrilled. Town of Francitas is near center of prospect. Other companies, as well as Shell, are interested in area.
Ganado	J. Davis, J. Heard, S. Rogers, W. Menefee.		Seismic	Undrilled.
Lolita	G. Ewing, D. Hoffman.	Alexander & Smith	Torsion	Undrilled. But scheduled to be developed in near future.
JEFFERSON COUNTY				
La Belle	T. & N. O. 208, A. Hotchkiss.	Vacuum Oil Co.	Torsion	Is about 8 mi. ne Big Hill dome. Only test there, Vacuum's Broussard & Hebert 1, was abandoned in shale at 5673 ft in Nov., 1929; no promising showings.
Cheek	M. Pivitot, W. Carr.	Cockburn Oil Corp.	Torsion	Is about midway between Fannett and Spindle Top. Favorable salt dome prospect; undrilled. Will be drilled soon.
LIBERTY COUNTY				
Devers	Malinda Whittington, north portion.	Humble O&R Co.	Torsion	Recent prospect. Undrilled.
MATAGORDA COUNTY				
Sargent	J. Van Dorn & D. E. Ballis, G. S. Penticost.			Undrilled.
VICTORIA COUNTY				
Bloomington	C. Creamer.	Petty Pet. Co.	Toriosn	Undrilled, but will be drilled soon.
WALLER COUNTY				
Waller	B. B. B. & C. D. O. Boyle.	Union Explo. Co.	Torsion	Undrilled.

GEOPHYSICAL DISCOVERIES IN LOUISIANA GULF COAST IN 1929

Area	Sections, Township and Range	Discovery Company and Method		Remarks
ACADIA PARISH				
Iota	25, 26, 35, 36-8s-2w	Sun Oil Co.	Seismic	Various companies obtained leases following shooting in June, 1929. Undrilled.
CALCASIEU-JEFFERSON DAVIS PARISH LINE				
Iowa	18, 19-9s-6w; 13, 24-9s-7w.	Shell Pet. Corp.	Seismic	Discovered in June, 1929. To be drilled soon.
Hays City	28, 29, 32, 33-10s-5w	Humble-Gulf	Seismic and Torsion	Undrilled.
CAMERON PARISH				
Cameron Meadows	21-14s-13w	Vacuum Oil Co.	Seismic	Is east of old Johnson Bayou prospect. Vacuum now moving in for first test, Cameron Meadows Ld. Co. 1.
Sabine Lake	T. 12s, R. 14w	Calcasieu Oil Co.	Torsion	Located at mouth of Black Bayou. Undrilled.
JEFFERSON DAVIS PARISH				
South Welsh	1-10s-5w	Pure Oil Co.	Seismic	Pure is now drilling around 1500 ft in first test, A. F. & W. L. Day 1.
ST. LANDRY PARISH				
Garland	Ne c T 14s, R 4e Nw c T 14s, R 5e	Humble-Pure	Seismic	Undrilled. Claim high.
Washington	38, 17-5s-5e	Pure Oil Co.	Seismic	Undrilled.
ST. MARY PARISH				
Glenwild	20, 21-15s-12e	La. Ld. & Explo. Co.	Seismic	Two old wells of Rio Bravo Oil Co., 3400 and 5000 ft deep, had oil show. Following geophysical work, La. Ld. & Ex. drilled two 1500-ft tests to check miocene, and now has derrick up for deep test. Believed to be deep dome.
Patterson	21-15s-11e	Vacuum-Empire	Seismic & Torsion	Vacuum and Empire now rigging up on Oscar Zenor 1, 2 mi n Patterson, first test of area. If dome exists it is deep.
Wax Lake	12-17s-9e	Pure Oil Co.	Seismic	Pure is now dredging canal to location of first test, Wax Lake State 1.
Avoca	25, 26-16s-12e	La. Ld. & Ex. Co.	Seismic & Torsion	Avoca Oil Co. and others drilled several wells, as deep as 3500 ft, during past 10 yrs, and several good showings were found. Probably not dome but structural condition. Gas, paraffine dirt and topography furnished incentive for early tests.
ST. MARTIN PARISH				
Bayou Chene	9, 10, 11, 15, 16-10s-9e	The Texas Co.	Seismic	Recent discovery. Undrilled
VERMILION PARISH				
Bayou Queue D'Tortue	T 12s, R 1w	Pure Oil Co.	Seismic	Located three miles north and little west of town of Guyedan. Short time ago Pure took leases from A. Kaplan.
Long Point	T 15s, R 1w	La. Ld. & Ex. Co.	Seismic	Undrilled.
Abbeville	68-12s-3e	Atlantic O. P. Co.	Seismic	Only test of area, Atlantic's Boudoin 1, was abandoned in Nov., 1929, in sticky shale at 5017 ft
White Lake	8, 9, 16, 17-15s-1e	La. Ld.-Shell-Humble	Seismic	First reported early in 1929. Undrilled.
WEST BATON ROUGE PARISH				
Thomas Bayou	N. cor T 7s, R 10e	Humble	Seismic	Undrilled.

Deep Drilling Around Old Domes Boosts Gulf Coast Recovery

(*Continued from page* 142)

ing 1930. The net results, in terms of oil produced, resulting from the discovery of the deep production by South Texas Petroleum Company was an increase in Humble field production from a little over one-half million barrels in 1928 to more than three million barrels in 1929.

Pierce Junction

Pierce Junction experienced the greatest year in its history during 1929 from the standpoint of production. During the one year it produced one-half as much as it had previously yielded in eight years. The 1929 total was 5,096,400 barrels, as compared with 3,980,400 barrels for 1928. Greater yields from wells during 1929 is indicated by the fact that production increased over a million barrels, whereas there was very little increase in field activity. In 1929 there were 85 completions, including 66 oil wells with combined initial production of 57,350 barrels; while in 1928 there were 80 completions, including 56 oil wells yielding 56,111 barrels of new oil. The feature of Pierce Junction drilling the past year has been the development of deep sands on the edges of the field. Numerous wells were drilled below 5000 feet, and considerable production has come from below that depth. Continued deep drilling will likely keep Pierce Junction in the fore-front among Gulf Coast fields during 1930 with respect to both production and interesting field development.

Raccoon Bend

Although some gas and a little oil production was developed at Raccoon Bend, Austin County, during 1927, it was not until January, 1928, that the first of the 3300-foot oil production was found; and even by the end of 1928 there were only five producers completed in that deeper sand. In 1927 Raccoon Bend produced 1000 barrels of oil, and in 1928 it produced 98,000 barrels. By that time Humble Oil & Refining Company and Valley Oil Corporation, working jointly and the sole operators there, had drilled 30 of the 1000-foot tests in addition to five deep producers. But in 1929 Raccoon Bend gradually began assuming greater importance. Around 25 new rigs were bought and put in operation in the field, and by the end of the year the productive territory had been extended to include an area approximately three miles square. Activity was increased about the middle of the year. During the first six months of 1929 there were 22 completions, including 17 producers with 6428 barrels combined initial production, and the field yielded 579,950 barrels of oil. Records for the entire year of 1929 show 99 completions at Raccoon Bend, including 81 oil wells with combined initial production of 30,836 barrels, five gas wells with 19½ million cubic feet initial production, and 13 failures. Total production at Raccoon Bend during 1929 amounted to 2,089,900 barrels.

Refugio

Development of oil production at Refugio has been particularly interesting. That field has been producing gas on commercial scale for nearly a decade, but it had no commercial oil production until the Texas Gas Company, an independent concern, went into an old gas test in the south end of the field, a 2400-foot non-producer, and on July 28, 1928, completed it for 700 barrels daily of 26.5 gravity Grade A coastal crude from a sand at 3682-3702 feet. Although it is near the coast, Refugio is in the extreme southwest end of the regular salt dome country, and indications of a salt plug have not been found there, although several wells were drilled below 5000 feet in 1929.

Shortly following the discovery of oil on the south flank of the field, Texas Gas Company repeated its original performance by finding oil on the extreme north flank at about the same depth. From those two original wells, oil production was then gradually extended to include much of the east edge of the field. Activity had not increased to great extent even by the beginning of 1929, but gradually more rigs were moved in and numerous operators ultimately became interested. By the fall of 1929 around 25 rigs were busy in the field. During the first half of 1929 only 11 oil wells were completed, while 10 wells were finished as gas producers. But by the close of the year 1929 drilling had included 119 completions, of which 69 were oil producers, 35 were gas wells, and 15 were failures. The 69 oil wells had a combined initial production of 26,385 barrels. Total oil production at Refugio in 1929 was 1,992,950 barrels, as compared with 56,600 barrels in 1928.

Late in 1929 the potentialities of the field were further enhanced through development of commercial production from a new deep sand in the east portion of the field. That sand, 5500 feet deep, and known as the "O'Brien," was discovered by Union Producing Company's O'Brien 1, which is now producing around 450 barrels of 28 gravity crude daily. With both of those sands due to be developed to considerable extent during 1930, the field's yield for the year is conservatively predicted to reach a total of 3,000,000 barrels. Soon after the oil production was established at Refugio the Gulf Coast Pipe Line Company (William F. Morgan Interests) began serving the field with a new 35-mile, six-inch pipe line leading to tanker loading terminal on Aransas Bay. Additional market outlet is now being provided through looping of that original line.

Sugar Land

Sugar Land stands out as the greatest of all testimonials to the value of geophysical exploration. In 1929 the field activity at Sugar Land comprised 44 wells completed, including 43 oil producers and only one failure. In 1928, the discovery year, five oil wells, one gas well, and no failures constituted the total activity. Summing up the two years, there have been 50 completions, 48 oil wells, one gas well, one failure. One will search in vain for a record to equal this in the Gulf Coast. Sugar Land dome is about 3500 feet deep, and was discovered and outlined by torsion balance. It is operated solely by Humble Oil & Refining Company.

Unit Control Gaining Favor in Oklahoma-Kansas

(*Continued from page* 138)

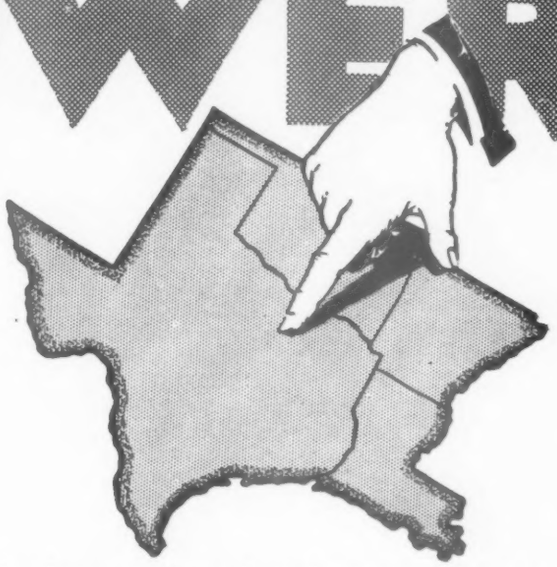
known, however, sufficient development is now underway to determine its dimensions. The producing horizon here is the chat, Viola lime and Wilcox sand, with the latter leading in production. The Ritz field is a chat producing pool and while big initial wells have made up its history they have shown the quick decline in output characteristic of chat.

Because of these two pools and the large gas pressure encountered in the county there should be a number of wildcat tests drilled during the year, and other spots of productiveness may be opened.

As a whole central Kansas should be the most active during the year since it has demonstrated its superior productiveness over western Kansas. Sedgwick County is commencing the new year as the second most active county in the state and has several producing pools to develop; however, none of them look large. Other pools are anticipated and what they have in store is a wild guess. All counties throughout central Kansas will experience work with the drill.

In western Kansas the wildcat campaign should continue. As was the case last year a good sprinkling of new wildcat producers may be expected. None of them will be along spectacular lines, probably. No real big competitive drilling campaign is expected due to the size of the blocks. There should be some let-up in the big wildcat exploration program in this area, which was the largest in the Mid-Continent region in 1929.

American business looks to the SOUTHWEST GAS BELT *as a source of Industrial* POWER



The Southwest produces three times as much gas as the great California gas belt, and practically twice as much as the widely scattered eastern gas fields combined. Natural gas is a necessity in some lines of manufacturing, and a great advantage in nearly all other lines! That is one of the reasons why American business is looking toward the Southwest as a favorable section for industrial sites. They know that natural gas is cheap, clean and flexible. Lone Star Gas Company will be more than glad to co-operate with the business leaders, interested in the development and industrial expansion of their community.

GAS

•••PIPED FROM THE WELLS TO YOUR CITY

Lone Star* Gas Co.

Dallas, Texas

Natural Gas Line Work in North Texas During 1929

CONSTRUCTION of natural gas lines in Texas was on the decline during 1929, and major projects were mostly to supplement gas supplies from existing lines. The Lone Star Gas Company was the most aggressive in expanding marketing facilities, and included in its program a 135-mile 20-inch welded line from Petrolia, Texas, to Fort Worth. Construction work on this larger carrier, which runs parallel to existing lines, began July 24, and was officially completed December 20, but sections had been tied in along the route prior to the latter date.

A number of small line projects were started and completed during 1929 so as to invade new communities, and also to augment gas supplies. Last April the company began construction work on a 24-mile 16-inch line from Desdemona station to the Sipe Springs gas area in northern Comanche County, and during the same month work began on a combination three and four-inch line, aggregating 31 miles, from Gainesville station to Myra, Muenster and St. Jo. Early last summer work began on laying a combination four and six-inch line from a point on its Ranger-Fort Worth trunk line to Grandbury, Walnut Springs, Morgan, Valley Mills, and other nearby towns, making a total of about 100 miles of trunk lines. Extension lines built in East Texas added about 20 miles to its system, while in Southern Oklahoma 23½ miles of small line was built in extending north from Frederick to Mountain Park and intermediate points.

Magnolia Gas Company invaded the Southwest Texas district last spring to supplement the natural gas supply for San Antonio and also to sell gas in New Braunfels, and built about 115 miles of combination 14, 18 and 20-inch welded line, exclusive of gathering lines, to take gas from White Point, Refugio, Agua Dulce and other nearby fields. Construction work was started in May, and the line was in operation late last summer.

The most western point in Texas began using natural gas the middle of last June when the El Paso Natural Gas Company started deliveries of natural gas from Lea County, New Mexico, to El Paso and intermediate points. This line required about 204 miles of 16-inch pipe, and has a large volume of industrial fuel business in El Paso.

Construction work was started late last summer by Public Service Corporation, Fort Worth, on laying a network of natural gas lines from the Shamrock field, located in Wheeler County, to a group of towns in the Texas Panhandle and Western Oklahoma. Approximately 250 miles of line is included in the program, varying from 6⅝-inch to four-inch in size. This project has not been completed.

Bill Seeks Oil Company Protection

Austin, Texas.—The oil industry in Texas is made independent of anti-trust legislation in a bill proposed by R. J. Long of Wichita Falls. His bill authorizes agreements for co-operation or unit development and operation of oil and gas pools. It provides that when such an agreement is approved by the State Railroad Commission it shall be held not to violate any laws prohibiting or relating to trusts, monopolies or conspiracies in restraint of trade.

Combinations are limited to operations in the same pool or in an area underlaid by a common accumulation of oil.

The bill was referred to the house committee on oil, gas and mining.

Pipe Lines Constructed in Gulf Coast and Southwest Texas, 1929

PIPE line construction in Southwest Texas and on the Gulf Coast during 1929 comprised various new lines of importance for carrying both oil and natural gas. New oil lines consisted principally of those built to serve the new fault fields, Salt Flat and Darst Creek, Caldwell and Guadalupe Counties, and to take care of the newly developed oil production around the old Refugio gas field. New gas lines included major projects of both Magnolia Pipe Line Company and of the United Gas Company (Moody-Seagraves interests). Magnolia Pipe Line Company built a large line to serve San Antonio. United Gas Company's most important project was the construction of a gas line from Southwest Texas to Monterrey, Mexico. That line has been in operation several weeks. United Gas Company also built a gas line out of Refugio to serve towns between there and San Antonio, and plans later to enlarge upon that system.

Following is a tabulation of these various new systems, showing length of lines and sizes of pipe.

OIL LINES

Salt Flat

Shell Pipe Line Company—Salt Flat to point 7 miles from Austin connecting with line out of West Texas, 37 miles 6-inch.

Humble Pipe Line Company—Salt Flat to West Columbia, 120 miles 8-inch.

Darst Creek

Texas Pipe Line Company—Darst Creek to Sullivan R. R. rack, 6 miles 6-inch. Sullivan to Rasansky Station, Bastrop County, connecting with West Texas line, 39 miles 6-inch.

Magnolia Pipe Line Company—Luling tank farm to Appling 1, 5 miles 4-inch.

Humble Pipe Line Company—Darst Creek to Salt Flat tank farm,——miles 6 and 8-inch.

Simms Oil Company—Tank car rack at Luling to Simms-Penn's producer, Manford 1, 4 miles 3 and 4-inch.

Refugio

Gulf Coast Pipe Line Company (Wm. F. Morgan interests)—Refugio to Port Aransas, 25 miles 6-inch; 25 miles 8-inch.

Miscellaneous

Gulf Pipe Line Company—Lynchburg to Dayton (rebuilt), 30 miles 8-inch. From this line to Barbers Hill, 3 miles 4-inch.

Humble Pipe Line Company—Barbers Hill to trunk line, 3 miles 8-inch.

NATURAL GAS LINES

To San Antonio

Magnolia Pipe Line Company—San Antonio to Mathis, San Patricio County, capacity 125 million ft. daily, 60 miles 20-inch; 30 miles 18-inch.

United Gas Company (Southern Gas Co.)—Orange Grove to Agua Dulce, connecting field with Magnolia's line, 17 miles 12-inch.

To Monterrey, Mexico

United Gas Company—Jennings, Zapata County, to Monterrey, Mexico, consisting of: South Texas Gas Company, Jennings to Roma (completed), 47.34 miles 12¾-inch o. d., Roma, Texas, to Monterrey, Mexico, line of subsidiary, Compania Mexicana de Gas, 96 miles 12¾-inch o. d. Total, Jennings to Monterrey, 143.34 miles 12¾-inch o. d.

Out of Refugio

United Gas Company (South Tex. P. L. Co.)—Convert, near San Antonio, to Refugio, survey made for 103.62 miles 16-inch, but only 61.2 miles completed, from Convert south, remainder construction suspended. Completed lines on this project as follows: Convert to point near Yorktown, trunk line, 61.2 miles 16-inch. Tap lines from trunk line (6-inch mostly): To Yorktown, 19½ miles; to Karnes City, 3.5 miles; to Poth, 5.2 miles; to Saspamco, 9.5 miles; to Kennedy, 3.8 miles; to Falls City, 5.2 miles; to Floresville, 5.2 miles.

To Baytown

Houston Gulf Gas Company—Crosby, Harris County, to Baytown Refinery, 16 miles 12-inch.

If to develop the science of oil well cementing you spent *hundreds of thousands of dollars;* if for this purpose alone you erected modern shops and costly laboratories; if on your payroll you maintained a staff of skilled engineers whose chief duty was to bring your cementing job to a higher and higher plane of efficiency—if you did all these things, you would be performing for yourself precisely the same service that the Halliburton company performs for the entire industry.

HALLIBURTON
OIL WELL CEMENTING CO.
Duncan, Oklahoma

"The Cementer" is a little monthly publication giving interesting information on unusual cementing problems and oil industry matters in general. To be placed on the subscription list it is necessary only to fill in and mail the coupon.

Halliburton Oil Well Cementing Co.
Dept. OW, Duncan, Okla.

Without cost or obligation, please place my name on the list to receive THE CEMENTER regularly as issued.

Name .....

Company .....

Address .....

Texas Committee Agrees on Drastic Production Cut

(*Continued from page 46*)

needs are the following: In 1928 the imports of crude oil were 79,000,000 barrels. In 1929 they were 77,000,000 barrels, a decrease of 2,000,000 barrels. In 1928 gasoline imports were 4,000,000 barrels and in 1929 (with December estimated) they were 9,152,000 barrels. Approximately 95 per cent of the total came from South America. It is estimated that for 1930 gasoline imports will be approximately 13,000,000 barrels. Total exports from this country for the same three years follow:

1927 . . . . . 44,337,000 barrels
1928 . . . . . 52,904,000 barrels
1929 . . . . . 58,000,000 barrels
(December estimated.)

Gasoline Oversupply

Unquestionably a large portion of the present distress is due to the piling up on the Eastern Seaboard of a vast over-supply of gasoline, with a resultant weakness in the entire market for refined products. This over-supply is due to a large extent to immense shipments of gasoline from California to the Eastern Seaboard through the Panama Canal—due, of course, to the fact that California is producing far more oil than the western coast area can consume or export to the Orient. In 1928 California shipped to the Eastern Seaboard 16,054,000 barrels of gasoline. In 1929 the shipments totaled 23,417,000 barrels. It was brought out in the directors' meeting of this Association at Dallas last Monday and in the meeting of this committee on last Friday that two ship-loads of gasoline recently left San Pedro, California, consigned to New York without a buyer. This may be termed distress gasoline, and such shipments, if continued to an already glutted market, will have a more and more disastrous effect on the general market.

The net result of this combination—imports in 1929 of 9,152,000 barrels of gasoline from foreign countries, and shipment of 23,417,000 barrels of gasoline from California to the Eastern Seaboard—has been to weaken the eastern gasoline markets to such points that much of this total of 32,569,000 barrels has been offered on the eastern markets at lower prices than the Mid-Continent producers, refiners, and marketers could hope to compete with under the crude oil price that prevailed before the recent cut. Such weakening of the eastern markets necessarily has brought distress to the Mid-Continent operators. There is no immediate relief in sight from this condition except through curtailment, for California is still shipping her excess gasoline in tankers to the Eastern Seaboard, and it is estimated that such gasoline shipments under present conditions will increase during 1930 by probably 4,000,000 barrels.

Stocks of crude oil and of gasoline in the United States have increased during the present year, even though production at the end of 1929 was at a lower point than at the beginning of that year. It is estimated that if the present rate of over-production of gasoline continues, stocks by March, 1930, will total 59,580,000 barrels—the high mark in the history of the oil industry. In March, 1929, total gasoline stocks in this country were 48,205,000 barrels, and in April, 1928, were 41,195,000 barrels.

The low point in gasoline stocks usually is reached in September or October of each year. It is estimated that at the present expected rate of production and consumption under existing conditions, including the probable increases from improved refining methods, gasoline stocks in November, 1930, will total 48,776,000 barrels, as against 33,222,000 barrels in September, 1929, and 26,378,000 barrels in September, 1928. In spite of all efforts to curtail production of crude and the refined output, there has been a steady increase in the amount of gasoline in storage.

As of December 31, 1927, total crude oil stocks in this country were 473,379,000 barrels. In spite of all efforts at proration, curtailment and conservation, crude oil stocks had risen by the end of 1928 to 490,786,000 barrels, an increase in one year of more than 17,000,000 barrels. In 1929, in spite of continued proration, curtailment and conservation efforts, crude oil stocks rose by the end of the year to a total of 541,382,000 barrels, the highest mark in all history and an increase over the preceding year of more than 50,000,000 barrels. It reflects the present unhealthy condition of the industry and shows that the 1929 production was nearly 150,000 barrels per day greater than the demand.

It is manifestly an impossibility, after such a brief survey, for this committee to attempt to say exactly what the present over-production is in barrels per average day. There are too many factors affecting supply and demand. In whatever direction we look, however, we have very significant indexes. Crude oil stocks have increased and are increasing at alarming rates. Gasoline stocks are piling up just as dangerously. All the time we have before us the vast threat from California's continuing to dump her excess gasoline production on the Eastern Seaboard, a market which seems glutted at all times.

It may be assumed that the more than 32,000,000 barrels of gasoline from California and from last year's imports represent the refined production of some 80,000,000 barrels of crude (based on the general average of a .4 barrel of gasoline per barrel of crude). This amount of 80,000,000 barrels alone represents more than 200,000 barrels per day of crude oil production. That figure is not far from the approximately 150,000 barrels per day increase in stocks of crude oil in 1929.

While reference has been made to the shipments of gasoline from California and South America to the Eastern Seaboard as constituting one of the major factors in the present situation, it should be observed that as long as there is an over-production of crude oil anywhere in the world, those districts so over-producing will naturally seek a market for their products. There is no way for us to say effectively to them that they must not ship their crude oil or their gasoline to such points as will afford them a market, and the only hope of correcting the situation is to set in motion all available legal machinery and methods for adjusting the oil industry in this country in its various relationships.

Over-production Universal

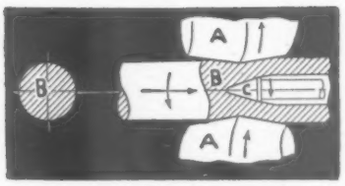
On every hand the oil industry today is confronted with a flood of oil. In Venezuela, Colombia, Mesopotamia, Persia, Russia and many other foreign countries hundreds of thousands of barrels per day are now shut it, awaiting to be released only by better market conditions. In Texas alone the output could be immeasurably increased merely by turning the valves on many wells already completed, and by speeding up the drilling of other wells on numberless proven locations. In California the same condition exists. In Oklahoma we all know the dread threat of the Oklahoma City, the Logan County and other fields of large potentials. Kansas is again becoming a market factor. New Mexico is waiting with a newly proven area that can produce vast quantities of oil. More than ever before in the history of our industry, which is so vital to the public, there is staggering need for the better and wiser adjustment of supply to demand.

One needs only to glance about him to realize how much already has been accomplished by the steps which have already been taken by each producer and refiner under the spur of the economic law of supply and demand to which your committee has referred. It is not difficult to realize how much worse conditions would be today if no steps in that direction had been taken. Many cry that the small independent operator and refiner is being injured by proration and curtailment. Yet it is the belief of your committee that unless further proration and curtailment is put in motion, prices for crude oil and, of course, for gasoline will go lower than they are now, and the situation of every operator, major and minor, will be far worse than it is now. With such vast supplies of oil in sight, no man and no corporation can afford to build storage for it. That would result in both economic and physical waste. Nature has provided the best and cheapest of all storage for this oil—the ground itself—and it is up to the operators themselves so to arrange their operations that crude oil will stay in the ground until it is needed on top of it. There are many of the major companies which now have vast

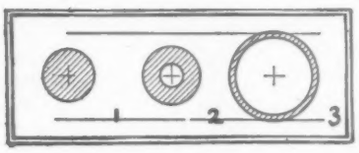
Pictured above is the first piercer in the J & L No. 2 Seamless Tube Mill at the Aliquippa, Pa., Works. One of the solid round billets, white hot, from which J & L Seamless Pipe is made, may be seen rolling down the skids, to enter the machinery in the right foreground, to be converted into tubular form. Compare the size of this powerful machinery with the operator, at his controls, in the center of the picture.

Right from the Start

J & L Strives for Seamless of Uniform Wall Thickness



Sketch shows in cut-a-way view, the operation of the first piercer. The rolls, "A," carry the solid round billet, "B," over the piercing point, "C."



Development of cross section in the manufacture of J & L Seamless: 1. Before piercing; 2. After first piercing; 3. After second piercing.

IN producing all sizes of Seamless Pipe, except the smaller tubing where one piercing operation is thoroughly satisfactory, J & L employs also a second, or expanding, piercer. By this most advanced method of seamless manufacture, J & L converts the solid round bar into a tube gradually and easily. Advantages are, absence of strains in the structure of the steel and production of a tube of relatively uniform wall thickness right at the start. Together, these results make for uniform strength and dependability in the finished J & L Seamless when it goes into service in the field.

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

J&L STEEL

Manufacturers of Seamless and Welded Casing, Tubing, Drill Pipe and Line Pipe, and Welded Steam, Gas and Water Pipe in both Black and Galvanized.

Also makers of Bars, Shapes and Plates, Reinforcing Bars, Cold Finished Steel, Junior Beams, Steel Piling, Fabricated Structural Work, Steel Barges, Wire Products and Tin Mill Products.

JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

proven production acreages. Should measures of proration and curtailment fail and the major companies be stimulated under the pressure of their leasehold obligations or otherwise to produce from such proven acreages at their maximum, such a flood of oil would be let loose as would make the buying of any oil by the major companies unprofitable, just as the storing of oil now is. Then indeed would there be complete ruin for that man or that company engaged alone in the production of crude oil. For then the highly integrated major companies would produce from their own leases to meet their own refining and marketing needs, and the independent producer would have no market whatever. If the major companies were seeking to eliminate the independent, they could seek no more certain method of than that of unrestricted production.

Increase in Texas

In Texas, even though its operators have led in curtailment attempts, oil production has steadily increased during the last two years. In January, 1928, the average daily production from all fields in Texas was 705,000 barrels per day. The Yates field in Pecos County, the first field in the country to be put under proration, began this experiment in October, 1927. The Winkler field followed suit early in 1928. Yet by January, 1929, production in Texas had risen to 820,900 barrels per day, and now in January, 1930, in spite of curtailment measures extended to the Howard-Glasscock fields and the Darst Creek field in Guadalupe County, production is at the record-breaking rate of 833,000 barrels per day.

California

California, in January, 1928, had an average daily production of 635,000 barrels per day. One year later the average was 801,000 barrels per day. Now, still one year later, it is 693,400 barrels per day, with further curtailment in prospect if the gas-oil ratio law is sustained by the courts.

Oklahoma

Oklahoma production in January, 1928, averaged 684,500 barrels per day; 12 months later 688,400 barrels per day; now, still 12 months later, 661,000 barrels per day; and since the recent price cuts Oklahoma producers have begun initiating measures there with the idea of cutting their production still further by 50,000 to 100,000 barrels.

Never before in the history of the oil industry has there been such a need for intelligent co-operation on every hand. Nothing will be accomplished if Texas curtails but California turns loose an additional flood of oil. No gain will result to anyone if Oklahoma cuts down and Texas increases her production, nor if California and Texas should curtail and Oklahoma increase. We must all understand the gravity of the situation and must take without delay every available step permitted by law to correct the overproduction malady with which we are afflicted. Obviously it is impracticable for producers in Texas to agree with producers in the other states, but if every producer in every state can be brought to see the basic and controlling factors, his own intelligent self-interest will compel him to conserve his oil potentials instead of throwing it upon already over-burdened markets.

Physical conditions govern the quantities of oil which Venezuela can ship, and the maximum movement there perhaps has already been reached. Yet hundreds of thousands of barrels of production above that maximum are shut in there. Substantially the same is true in the Iraq and the East Indies. The problems of oil producers of Texas, Oklahoma, Kansas, New Mexico, and California, therefore, have these encouraging factors. They may largely ignore foreign production at the moment and work on their own situation. It is the unanimous opinion of your committee that the problem as it now exists can only be dealt with successfully by curtailment and conservation.

Committee Recommends

Considering all of the factors which have been reviewed, your committee believes that, so far as is legally possible, steps should be taken toward the reduction of production along the following lines:

1. To correct the present over-production of oil in the United States by working for an immediate cut of 200,000 barrels per day below the daily average production for the year 1929.

2. To call a meeting of all oil operators in the State of Texas at the earliest possible date, and at that time lay the entire situation before the meeting and consider the Texas fields, pool by pool, with a study of such reduction in each pool as operators should be encouraged to make.

3. That operators in Oklahoma and California be informed of the action of Texas operators and be asked to hold similar meetings and work out for themselves such curtailment and conservation programs as will contribute to the general relief of the oil industry.

4. That the facts as to the Texas fields and the general production and refining conditions be brought to the attention of the Railroad Commission of Texas, to the end that that board for the common good take such action as in its judgment the situation demands.

5. It is recognized by your committee that there are certain producing fields having small wells and coping with water problems in which curtailment measures will either be physically impossible or economically impracticable. Conservation steps, if any, therefore, should take account of such wells, and the Railroad Commission should perhaps arrive at and fix some arbitrary rule as to such small wells or small pools, and declare points below which no efforts at curtailment or conservation should be made. In other words, it is the feeling of your committee that the pools having wells of large size can most effectively contribute to relief.

In this connection your committee recognizes the right of all districts having actual or potential oil production to produce their respective portions of the supplies necessary to meet market requirements. Your committee subscribes to the idea that intelligent action must also take note of world conditions. Every district in every nation has a vital interest in obtaining the proper conservation of its petroleum products, for there is no other major production in our present civilization which is so sure of eventual exhaustion, and so absolutely irreplacable whenever that time of exhaustion comes. The very existence of our nation may depend upon the exercise by the oil industry of great wisdom in dealing with situations such as that which now faces us, and the entire industry should seek the counsel and support of all governmental agencies.

(Signed) Warner Clark, chairman; John F. O'Donohoe; Charles F. Roeser; J. S. Birdwell; Robert R. Penn; Edgar J. Marston; Frank Cullinan and T. B. Hoffer.

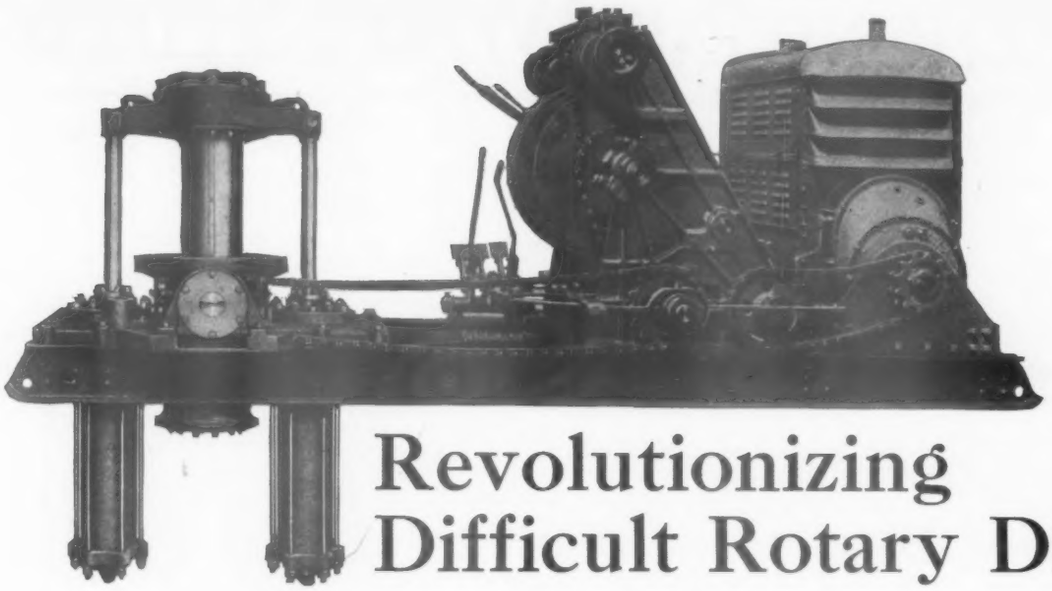
Jackson, Mississippi.—Chief interest in Mississippi continues to center in Cleve Love and associates' Mayes 1, Section 2-5-1e, Hinds County, on the outskirts of Jackson, where 6⅝-inch casing was set at the top of the chalk at 2460 feet. While no official announcement has been made as to when the test will be drilled in the impression prevails that it will be near the middle of February before that is done. A gas blowout last fall in Rainey 1, just over the line in Rankin County in the chalk at 2512 feet, the test being later abandoned, is the cause of interest in this test.

Alcorn Petroleum Company is arranging to shoot formation in Matthews 1, Section 14-2-7e, Alcorn County, north Mississippi, to see if oil or gas is present from 2520 to 2560 feet. Operators have completed reaming to 2480 feet to reland six-inch casing, about 500 feet of which is being awaited. Total depth of the hole is 2735 feet.

Amory Development Company has shut down at 2912 feet in lime with bailer still in the hole in Bourland 1, Section 2-12-19w, Amory district, Monroe County, and the crew has been shifted to rigging up tools on A. D. Morton and associates' O'Neal Heirs 1, Section 8-2-13w, Lauderdale County, Alabama, which P. J. McAlpine, the drilling contractor for all the tests around Amory, will drill. Amory Petroleum Company's Hall 1, Section 8-13-17w, Monroe County, Amory district, is having trouble shutting off water after setting liner with packer at 2325 feet in new hole, total depth of old hole being 3045 feet.

Amerada Petroleum Corporation after reaming 150 feet in Campbell 1, Section 24-12-2w, Yazoo County, Mississippi, is now drilling below 2800 feet.

In Lamar County, Alabama, Briggs and Knapp are making slow progress in drilling ahead in Wefel 1, Section 25-12-14w, being in hard limestone at 1732 feet.



Revolutionizing Difficult Rotary Drilling

especially in high pressure areas and in caving formations

Drill with Flush-Joint Pipe

THE Sheldon-Burden rotary drilling system eliminates blowouts, wild wells, and danger of fire. No matter what the rock pressure may be, you can drill and fish with security and confidence.

It saves mud. In Winkler County, Texas, it saved one company as much as $15,000 a well in mud costs alone.

High pressure wells may be drilled in with light mud or even oil as a circulating medium with no danger of a blowout.

An inch larger flush joint pipe can be used in a casing string than is possible if collared pipe were used. This feature is particularly important in deep well drilling.

The Sheldon-Burden rotary drilling system makes it possible to put back pressure on a formation, thus preventing heaving. Many times it will stop caving.

Having no collars to pass, flush joint pipe is not easily stuck.

The Sheldon-Burden rotary drilling system can be used with the type of rotary rig you are now using.

Flush joint pipe will do anything regular collared pipe can do and a lot more. It costs but little more. Why not use the best and be prepared? Investigate!

Sheldon-Burden Type "D" Drill. Weight with gasoline engine about six tons. It is an excellent machine for production drilling to 2500 feet or coring to greater depths. It can be furnished with regular 16-inch production table, or the hydraulic feed table shown in illustration. The hydraulic feed mechanism is readily removed from the hydraulic feed table shown and in its place regular slips and drive bushings can be used. The Type "D" drill is a real practical gasoline driven rotary rig and is remarkably free from breakdown troubles and repairs. If desired the rig can be furnished with either electric motor or Diesel engine.

Sheldon Machinery Corporation
15 Park Row, New York

Branch Office: 718 Second National Bank Building, Houston, Texas
Distributors: Oil Well Supply Company—Lucey Products Corporation

SHELDON HYDRAULIC ROTARY TABLES

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

SUMMARIZED REVIEW OF FIELD RESULTS

State—	Completions This week	Completions Last week	Producers This week	Producers Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Alabama	1	..	..	..	..	..	1	..	...	...
Arkansas	5	4	4	3	..	..	1	1	559	150
California	24	28	21	24	.	..	3	4	50,957	31,250
Illinois	11	4	8	2	..	..	3	2	194	14
Indiana	9	3	1	2	7	..	1	1	19	66
Kansas	10	8	3	..	1	..	6	8	2,040	...
Kentucky	13	22	10	11	1	3	2	8	544	400
Louisiana	16	21	7	6	2	5	7	10	2,891	262
Michigan	3	5	3	5	..	..	..	..	1,025	870
Missouri	..	1	..	..	..	..	..	1	...	...
New York	20	..	20	..	..	..	..	..	86	...
Ohio	35	35	10	12	14	13	11	10	393	233
Oklahoma	39	96	22	63	3	10	14	23	45,520	157,268
Pennsylvania	82	5	74	3	3	1	5	1	423	17
Texas	56	106	30	49	5	9	21	48	15,445	62,346
West Virginia	13	31	3	2	7	26	3	3	122	17
Total	337	369	216	182	43	67	78	120	120,218	252,893
Increase this week	..	..	34	..	..	..	..	..	...	...
Decrease this week	32	..	..	..	24	..	42	..	132,675	...

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
FRUITVALE—		
Shell Oil Co., Brackenbury 1	200	3895
HUNTINGTON BEACH—		
Standard Oil Co., Thompson 11	150	2880
LONG BEACH—		
Bar How Oil Co., No. 1	1000	4540
Chicksan Oil Co., Robertson 4	700	7045
J. H. Cochrane, No. 5	200	7340
SANTA FE SPRINGS—		
General Pet. Corp., S. F. 129-A	3700	7901
S. F. 136-A	8007	3200
S. F. 179-H	2000	8000
No. 208	700	7950
S. F. 191-F	600	8150
Hill 187-B	1500	7995
S. F. 152-G	2300	8000
George F. Getty, S. F. 21	2400	7950
Twin Bell Syn., Callahan 1	3600	8055
Grohs 4	4500	8040
Union Oil Co., Bell 50	8400	8000
Commodore Pet. Co., Landl 3	2100	7975
Italo Pet. Corp., Archer 2	4000	7850
Standard Oil Co., Koontz 8	200	7985
Wilshire Annex Oil Co., Crawford 1	2200	7950
Cecelia 2	2500	7915

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
ATOKA COUNTY—		
J. W. Earnest, Burton 1, nw se se 1-1n-13e	*	800
CADDO COUNTY—		
Magnolia, Rowe 7, nw sw ne, 36-6n-10w	180	3275
CREEK COUNTY—		
O'Hair and Foster, Mathews 1a, ne sw nw 27-18-11e	*	2578
Iron Mountain Oil Co., Bruner 1, ne se se 29-18-11e	*	2032
Empire, Bigpond 3, sw nw nw 36-16-7e	20	2643
C. G. Tibbens, Conesseny 4, sw ne se 30-15-9e	15	3593
Operators Oil Co., Grayson 4, se nw se 17-19-9e	30	2280
GRADY COUNTY—		
Magnolia, Smith 10, se sw ne, 35-5n-8w	¶5	2330
KIOWA COUNTY—		
C. E. Sossamon, Thompson 1, nw se, 11-6n-17w	*	1120
LEFLORE COUNTY—		
George F. Collins, Jackson 1, ne nw nw 33-7n-26e	¶¼	1845
LOGAN COUNTY—		
Wentz Oil Corp., Williams 3, ne nw ne 31-19-4w	*	6021
MARSHALL COUNTY—		
Bilbo Oil Trust Co., Taliaferro 3, sw ne se 14-5s-5e	85	552
PAWNEE COUNTY—		
Martin et al, Cotton 6, csl ne sw 6-20-8e	40	2619
West and Brewer, White 1a, sw se se 6-20-8e	15	1730
Capitol Hill Oil Co., Green 2, se ne se, 25-21-8e	20	855
PITTSBURG COUNTY—		
Quinton Relief Oil Co., Huston 1, e sw se 9-7-18e	*	450
Midwestern Oil Co., Benedict 1, sw se se 10-7n-18e	¶17	1862
PONTOTOC COUNTY—		
Benedum and Trees, Lowery 3, nw sw se 31-5-5e	200	2658
POTTAWATOMIE COUNTY—		
Sinclair, Smith 2, nw 9-8-5e	*	4351
Magnolia Pet., Jordan 1, se nw se 12-7-4e	185	3975
Pure Oil Co., et al, Latimer 1, ne nw nw 21-7-4e	175	4125
SEMINOLE COUNTY—		
Minnehoma Oil Co., Noe 5, nw se nw 17-9-6e	40	4235
Amerada Petroleum and Dixie, Fullerton 1, nw ne se 19-9-6e	8915	4180
Shell, Hopper 5, sw ne 19-9-6e	7700	4118
Shell, Hopper 6, se sw ne 19-9-6e	5130	4127
Shell, Hopper 7, sw se ne 19-9-6e	7510	4174
Carter, Campbell 1, nw sw 20-9-6e	4845	4172
Independent et al, Fixico 1, nw sw nw 20-9-6e	3825	4233
Carter, Coker 4, ne se sw 2-8-5e	1345	4229
Mid-Continent Pet., Smith 13, se nw se, 5-7-7e	2690	3200
Gypsy, Renton 5, sw ne ne 11-7-6e	2450	3096
Barnsdall, Cotcha 1a, nw ne 23-7-6e	105	3135
Carter, Carter-Empire 1, ne sw 16-9-6e	*	3655
Independent et al, Davis 7, sw se, 2-7-6e	*	3250
TULSA COUNTY—		
W. O. Dickerson, Cooper 8, e sw 12-16-13e	*	2030
Tidal Oil Co., Agent 2, sw ne, 12-16-13e	*	1552
Bryan Pet., Rothammer 1a, se sw sw 1-16-15e	*	1927
WAGONER COUNTY—		
P. Boyle et al, Sugar 3, nw sw 17-17-16e	*	1646
W. C. Hatch, nw sw se sw 11-18-15e	*	1500

KANSAS

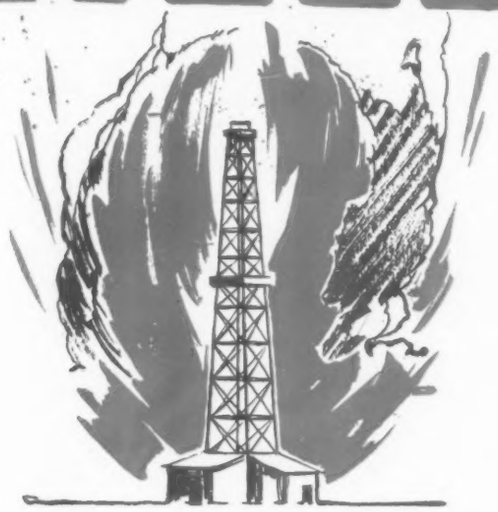
Company, Well and Location	Initial Production Bbls.	Depth
ELLIS COUNTY—		
Mid Kansas Oil & Gas' Johnson 1, sw se ne, 9-13-19w	*	4360
McPHERSON COUNTY—		
Gypsy's Kinney 1, ne nw sw, 34-20-3w	¶1¾	3102
Empire's Voshel 1, (owdd) ne se ne, 9-21-3w	1450	3312
RENO COUNTY—		
Empire, Beltz 1, ne nw, 36-25-4w	*	4305
SEDGWICK COUNTY—		
Bu Vi Bar, et al's Lyon 4, ne nw sw, 7-26-1e	575	3554
L. H. Wentz' Moore 1, se nw, 17-28-1e	*	3552
Bright 6, ne nw, 1-26-1w	*	3381
Bright 5, nw ne nw, 1-26-1w	*	3410
SUMNER COUNTY—		
Champlin Oil & Ref.'s Latta "B" 4, sw, nw se nw, 9-20-2w (owdd)	*	3850
Davis and Harrold Pet.'s Swartz 2, ne, 27-34-2e	15	3548

EASTERN STATES

PENNSYLVANIA

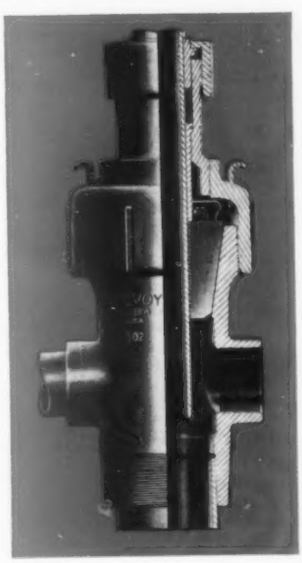
Company, Well and Location	Initial Production Bbls.	Depth
BRADFORD FIELD—		
South Penn Oil Co., Bingham 151, tr 49	2	....
Bingham 151, tr 50	2	....
Bingham 150, tr 31	3	....
Bingham 150, tr 32	3	....
Bingham 387, tr 17	2	....
Bingham 533, tr 115	2	....
Bingham 212, tr 49	2	....
Bingham 570, tr 8	4	....
Bingham 494, tr 4	2	....
Bingham 475, tr 11	3	....
Bingham-Satterfield 164	2	....
Bingham-Satterfield 165	2	....
Degolia 12	2	....
Degolia 01	2	....
Degolia 019	2	....
Cross 21	2	....
Wardwell 2	2	....
Whipple 153	2	....
Melvin 273	2	....
Melvin 274	2	....
Melvin 275	2	....
Rew-Hodge 64	2	....
Redfield 19	3	....
Riddle 19	8	....
Culbertson 87	2	....
Smith 204	2	....
Niagara Oil Corp. Lawton, (8 oil wells)	24	....
Messer Oil Co., Messer 24	12	....
Messer 25	17	....
Messer 26	45	....
Messer 27	10	....
N. V. V. Franchot, Rounds 22	22	....
Rounds 23	24	....
G. W. Smith, Smith 11	15	....
J. W. Kaufman Estate, Rounds 17	15	....
C. E. Potter, Russell 11	7	....
A. L. & L. M. Lilly, Middaugh 22	7	....
M. E. Berry & Co., Givin & Co. 11	7	....
Givin & Co. 12	7	....
Mix-Creek Oil Co., Mix-Creek 80	2	....
D. J. Moody, Moody 33	5	....
First Nat. Bank of Olean, Keating 5	7	....
Penn Pet. Co., Duke 3	4	....
Healy Pet. Corp., Healy 35	3	....
Healy 36	3	....
Healy 37	8	....
Minard Run Oil Co., Dent 9	10	....
Fred Lawson, Lawson 1	14	....
H. B. Oil Co., Bingham 3	17	....
V. Schopperle, Duke 22	2	....
Duke 23	2	....
H. E. Camp Estate, Bingham 17	3	....
GREENE COUNTY—		
National Supply Co., Brickman 1	30	....
Manufacturers Light & Heat Co., Powers 3	*	....
Huds Run O. & G. Co., Dye 5	2	....
John Blair, Bryan 10	¶1	....
Callahan Drilling Co., Durbin 2	*	....
BUTLER COUNTY—		
M. B. Finnessy, Barkley 30	2	....
Blair & Stewart, Fee 11	2	....
W. M. Ruby, McCullogh 8	2	....
G. Gettman & Co., Wilson Heirs 4	*	....
James F. Graham, Graham 9	*	....
VENANGO COUNTY—		
C. F. & C. C. O. & G. Co., Hebscel 6	2	....
Hebscel 7	2	....
Hebscel 9	2	....
J. M. McLaughlin, McLaughlin 13	2	....
McLaughlin 21	*	....
R. & G. Fogge, Clark 39	2	....
F. & B. O. & G. Co., Beals 1	3	....
W. B. & F. E. Kapp, Sporer 4	¶¼	....
E. A. Burch & Co., Fowler 21	2	....
C. L. Irwin & Co., Hoffman 2	2	....
S. Y. Ramage, Lot 79 tr 95	2	....
S. R. Lewis & Co., Lewis 2	¶¼	....
Grimm & Jennings, P. C. L. Co. 45	2	....

HELL *Hath no Fury Like a Wild Well's Scorn!*



Consider the thousands of dollars invested in a well in drilling equipment, in pipe, in casing, in labor, in overhead. Yet all of this may be endangered through a little false economy in not properly controlling the well. The future production of the well may be seriously curtailed by letting a well get out of control. Many drillers have learned to their own amazement and to the disfavor of their employers that "Hell hath no fury like a wild well's scorn."

McEVOY *Universal Casing Control Head Protects Well . . .*



When used as a drilling control head with main body mounted in casing and with Automatic Safety Pressure Head Attachment close at hand, you need have little fear of the fury of gas pressure.

The drill stem can be raised to the nearest coupling or tool joint below the head, and the Automatic Safety Pressure Head dropped into place. It locks itself at once. The weight of the drill stem resting on it makes a pressure tight joint.

While seated in the spider, pump pressure may be applied to hold down gas pressure. After pressure subsides, the safety pressure attachment may be quickly removed and drilling resumed. The Automatic Safety Pressure Head may be used at any time during the drilling to force the mud into any loose sand or caving strata.

The McEVOY UNIVERSAL CASING CONTROL HEAD is truly "universal." It meets every need of the top of the well from "drilling-in" to "pumping."

Write for descriptive folder.

J. H. McEVOY & COMPANY

HOUSTON, TEXAS, U.S.A.

Pacific Coast Branch: McEVOY SCREEN PIPE CO., 2428 E. 56 St., Los Angeles, Calif.

NEW YORK

Company, Well and Location	Initial Production Bbls.	Depth
ALLEGANY COUNTY—		
Producers Gas Co., Fee 21	3	....
Fee 22	5	....
Producers Gas Co., Fee 23	5	....
Ryder-Richmond Oil Co., Fee 62	3	....
Fee 63	3	....
Fee 64	3	....
Gilligan & Dermitt, Fee 1	7	....
Fee 2	7	....
O. A. Eastman, Eastman 1	5	....
N. V. V. Franchot, Franchot 34	4	....
Franchot 35	5	....
Relland & Co., South Penn 12	7	....
Forest Oil Corp., Fee 1	4	....
Joseph Sutter, Sutter 1	2	....
L. W. Shaner & Co., Shaner 12	7	....
G. H. Bradley & Co., Bradley 25	3	....
Bradley 26	3	....
A. C. A. Oil Corp., Fee 1	4	....
B. C. Tuller, Tuller 1	3	....
C. M. Lippert & Co., Lippert 26	3	....

WEST VIRGINIA

ROANE COUNTY—		
Heck Oil Co., Tallman 6	100	....
Hope Const. & Ref. Co., Vandal 2	10	....
United Carbon Co., Boggs 1	¶½	....
Jeff Miller & Co., Cutright 1	*	....
CALHOUN COUNTY—		
W. H. Bickel, Bryner 1	¶1	....
Bailess 1	*	....
Snodgrass & Co., Jeffries 1	*	....
PUTNAM COUNTY—		
Penn O. & G. Co., Kinder 1	¶1½	....
Sovereign Gas Co., Burns 1	¶2	....
CLAY COUNTY—		
Virginian Gasoline & Oil Co., Brown-Swan 20	12	....
BOONE COUNTY—		
Cameron O. & G. Co., Alderson 10	¶1	....
MARION COUNTY—		
Monroe & Laughlin, Campbell 1	¶1	....
LINCOLN COUNTY—		
United Fuel Gas Co., Dotson 3807	¶¼	....

KENTUCKY

DAVIESS COUNTY—		
Evans & Garrison, Davis Heirs 9	150	....
The Ohio Oil Co., Johnson 1	100	....
Dunning Drilling Co., Taylor 1	75	....
Miller & Damron, Southwestern Tytle & Trust Co. 1	6	....
Eastern Gulf Oil Co., Murray 11	2	....
Creek Drilling Co., Flynn 1	¶½	....
Jetsan Oil Co., Lewis 1	*	....
WARREN COUNTY—		
W. W. Wareham, Smith 1	6	1206
HOPKINS COUNTY—		
Ohio Oil Co., Wyatt 1	*	2055
OHIO COUNTY—		
S. H. Russell & Co., Midkiff 5	100	....
Louisville Gas & Electric Co., Miller 3	75	....
Chester Oil Co., King 2	20	....
S. R. Nigh & Co., Kelley 14	10	....

SOUTHEASTERN OHIO

MONROE COUNTY—		
Charles Baker, Baker 3	¶¼	1335
Penn O. & G. Co., Oneacre 1	¶½	1518
Shay McMullen, Knapp 2	¶½	2059
McBride & Co., Mann 2	¶½	1478
Roy Becker & Co., Kaiser 1	*	1590
NOBLE COUNTY—		
Myra E. Lee, McGinnis 7	2	....
B. Z. King, Crum 6	1	223
Watson & Co., Spence & Spence 2	¶¼	953
WASHINGTON COUNTY—		
Henderson Oil Co., Haught 11	¶¼	2130
Joseph F. Ward, Ward 8	5	....
MORGAN COUNTY—		
The Kemrow Co., Boyd 1	¶1½	619
Dover Oil Co., Gifford 22	¶¼	1634

CENTRAL OHIO

PERRY COUNTY—		
McClay & Whitmer, Wabash Pottery Co. 1	170	3502
Wehrle O. & G. Co., Gordon 2	125	3511
Perry Sturm & Co., Sands 1	5	3317
Foraker & Co., Driggs 2	*	1046
ATHENS COUNTY—		
Edward Byron & Co., Pilcher 5	*	188
State O. & G. Co., State of Ohio 10	*	1295
Northern Development Co., McDonaldson 1	*	3720
WAYNE COUNTY—		
Harmon & George, Buckholtz 2	¶¼	684
Ohio Fuel Gas Co., Hagerman 2	¶1	....
BELMONT COUNTY—		
W. C. McBride, Hogue 1	¶½	1483
Frank Stranges, Shepherd 5	¶½	1014
SUMMITT COUNTY—		
East Ohio Gas Co., Lauby 1	¶½	3623
Stolz O. & G. Co., Silk 1	*	....
MEIGS COUNTY—		
W. H. Shipe & Co., Klein 1	¶¼	575
Smith & Watterson, Carnahan 2	*	....
MUSKINGUM COUNTY—		
McIntyre & Guthrie, Young 1	65	....
MEDINA COUNTY—		
Oko O. & G. Co., Sanford-Watson 34	5	....
JACKSON COUNTY—		
Ohio Fuel Gas Co., Rice 1	*	2777
GALLIA COUNTY—		
Huston O. & G. Co., Brothers 3	*	400

NORTHWESTERN OHIO

SENECA COUNTY—		
Geyer & Shaul, Swander 1	1	1776
Hulce & Co., Beck 2	*	1540
MERCER COUNTY—		
Margaret E. Grace, Fireovid 6	14	1185
SANDUSKY COUNTY—		
Cessna-Feasel Co., Ziegler 1	*	1593

INDIANA

HANCOCK COUNTY—		
Knightstown Nat. Gas Co., Ramsey 1 and 2	¶½	....
Reed 1	¶1	....
DECATUR COUNTY—		
Hoosier Public Utility Co., Hutchinson 3	¶1	900
Hutchinson 4	¶½	911
HARRISON COUNTY—		
Laconia Fuel & By-Products Co., Stephens 1	¶½	....
Stephens 2	¶¼	....
PIKE COUNTY—		
C. C. Taliferro, Jr., Kime 5	19	1245
McAtee 2	¶¾	1350
Indiana O. & G. Corp., Gord 1	*	2150

ILLINOIS

ST. CLAIR COUNTY—		
Ohio Oil Co., Tarlton 5	90	538
Metler 1	30	533
Lindeman 2	27	507
Clarence Roques & Co., Zeller 1	15	550
Duncan Bros., Becker 1	*	875
Columbia Quarry Co., Fee 2	*	746
LAWRENCE COUNTY—		
Ohio Oil Co., L. A. Buchannan 47	10	1897
A. B. Buchannan 19	2	1291
A. B. Buchannan 20	10	820
WABASH COUNTY—		
W. C. McBride, Inc., Cisil 7	10	1121
CRAWFORD COUNTY—		
Arkansas Fuel Oil Co., McClain 1	*	1062

MICHIGAN

ISABELLA COUNTY—		
Pure Oil Co., Fox 8	400	....
Leonard O. & G. Co., McClintic 4	325	....
McClintic 6	300	....

ARKANSAS

OUACHITA COUNTY (Smackover)—		
Sinclair O.&G. Co., Berry 15, 33-15-15	25	2390
Ark. Fuel Oil Co., Snyder 8, 34-15-15 (second compl.)	18	1965

NORTH LOUISIANA

CADDO PARISH—		
Oil Field Exploration Co., Caldwell 15, 29-22-15	25	1005
Double II Oil Co., Spell 13, 15-21-15	10	1710
Magnolia Pet. Co., Doan-Thigpen 19, 6-20-15	4	1670
E. W. McGoldrick, Dreyfuss-Lane 3, 10-21-15	2	1720
RICHLAND PARISH—		
Richland Prod. Co., Thomason 1, 13-16-6e	¶17	2435
WEBSTER PARISH—		
Standard Oil Co. of La., Bodcaw E-1, 28-21-10	¶½	4686

SOUTH LOUISIANA

BAYOU BOUILLON—		
Rycade-Humble, Bayou Bouillon 4	*	4300
CAILLOU ISLAND—		
The Texas Co., Caillou Island 2, Sec. 18-23s-20e, Terrebonne Parish	1100	3240
EAST HACKBERRY—		
Calcasieu Oil Co., Watkins 16	*	3265
HACKBERRY—		
Rycade-Humble, Gulf Land 4	*	5960
JOHNSON BAYOU—		
Yount-Lee Oil Co., W. H. Stark 1, Sec. 1-15s-15w, Cameron Parish	*	7657
PORT BARRE—		
The Texas Co., Botany Bay 3	1600	3436

TEXAS

GULF COAST

BARBERS HILL—		
Mills Bennett Prod. Co., Wilburn 2	2000	5022
Sinclair, Wilburn 2	1350	5160
BLUE RIDGE—		
Humphreys Corp., West-Schenck 4, dd	35	3790
Cunningham Prod. Co., Blakely 6, dd	*	2630
CLAY CREEK—		
Sun Oil Co., Schlottman 2	90	1385
HUMBLE—		
Humble, Williams 10	600	5316
South Texas Pet. Co., Lee 2	1900	4941
Morris 12	40	5367
HULL—		
Gulf, Phoenix Dev. Co. 68, dd	2800	3750
Houston Prod. Co., Barngrover 14	350	3750
REFUGIO—		
Benedum & Trees, Rooke 1	*	6134
SOUTH LIBERTY—		
Empire G. & F. Co., Groggan 9	*	3540
SUGAR LAND—		
Humble, Bankers Mortgage 2-C	400	3725
WEST COLUMBIA—		
Saxet O. & G. Co., Hogg 2	*	5004

EAST TEXAS

PANOLA COUNTY—		
Ark. La. Pipe Line Co., Lewis Werner Sawmill Co. 9, Mitchell Sur	¶¼	2343
Natural Gas Prod. Co., Tom Moore 2, B. C. Jordan Sur	¶1	2300

TEXAS PANHANDLE

GRAY COUNTY—		
Operators Oil Co., Cook-Faulkner 7	¶10-2400	2862
Shamrock O&G Co., Saunders-Lincoln 3	85	2599
Shell- Pet. Corp.-Alexander et al, Harrah 1	120	3235
The Texas Co., G. H. Saunders 18	100	2560

WEST TEXAS

CROCKETT COUNTY—		
The California Co., Shannon 1	270	2551
ECTOR COUNTY—		
Landreth Prod. Corp., University 1-S	¶2-950	3662
GLASSCOCK COUNTY—		
Amerada Pet. Corp., Coffee 1	750	2264
Lion Oil Ref. Co., Coffee 3	400	2280
HOWARD COUNTY—		
Continental Oil Co., Clay 2-1	50	2942
Merrick & Lamb, Clay 11	25	1880
PECOS COUNTY—		
Landreth Prod. Corp., University 6-A	40	1679
Transcontinental & Arkansas Fuel Oil Co., Mathews 1	150	1520
UPTON COUNTY—		
TP Coal & Oil Co. & Simms Oil Co., Lane 1-D	135	2420

NORTH TEXAS

HASKELL COUNTY—		
S. S. Kouri-Shaheen et al, Reynolds 1	*	965
THROCKMORTON COUNTY—		
Cranfill-Reynolds Co., Lee 6	¶1	517
WILBARGER COUNTY—		
Hoover Scientific Dev. Co., Waggoner 1-B	*	2705
Porter Rankin et al, Waggoner 1	*	2401
YOUNG COUNTY—		
Pemeta Oil Co., Scott 11	15	4370
Pitzer & West, Morrison 6-A	200	3830

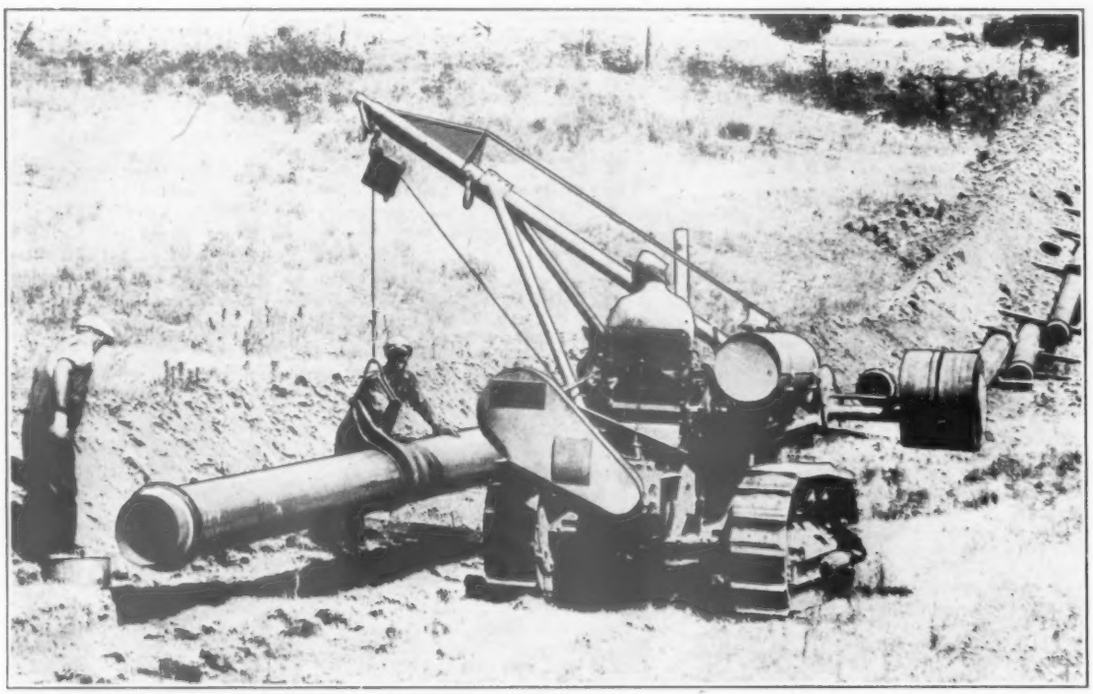
CENTRAL WEST TEXAS

BROWN COUNTY—		
Buras et al, Gwathney 1	*	1505
Mitcham, Preston et al, Lewis 1	*	1077
S. B. Owens, Inc., et al, Whiteside 3	40	1305

(Continued on page 228)

CARD-KELT ALL STEEL

The Card-Kelt
Allsteel Pipeline Winch
for Record Speed!!



Model "30-R" Mounted on Hillside Special "Caterpillar" Tractor, Barber County, Kansas

When Speed is essential . . . When the job MUST be done on time . . . Choose the ALL-STEEL PIPELINE WINCH Model "30-R."

Mounted on the Hillside Special "Caterpillar" Tractor the ALLSTEEL is the peak of winch efficiency.

It is equipped with a 4-speed transmission. Nikrome nickel steel shafts, and Hyatt bearings throughout.

A pipe line winch for any size line. Also used with unusual success for general refinery, dock and warehouse service.

Additional information, and prices on application.

Cable Address—"CARDKELT", Wichita

THE ALLSTEEL PRODUCTS MFG. CO., Inc.

231 WEST ENGLISH ST.,

WICHITA, KANSAS

MANUFACTURERS OF OILFIELD AUXILIARY EQUIPMENT FOR "CATERPILLAR" TRACTORS

CARD-KELT ALL STEEL

PERMITS GRANTED FOR NEW WELLS

WEEKLY COMPARISON OF NEW WELLS

State—	Week ending Jan. 25	Previous week	Total this month	Total this Year	This week 1929	This month 1929	1929 Year Total
Arkansas	2	2	11	11	6	14	159
California	10	13	57	57	33	100	1,231
Louisiana	11	17	65	65	..	49	903
Kansas	8	12	61	61	38	98	1,079
Oklahoma	48	66	248	248	93	271	3,578
Texas	136	100	652	652	165	595	8,697
Total	215	210	1,194	1,194	335	1,127	15,647

OKLAHOMA

CADDO COUNTY—Louisiana Oil Co., Jones 1, ne sw se, 31-6n-9w.

CARTER COUNTY—Magnolia, Lewis 7, se ne ne 23-1s-3w; Spigner 1, se nw nw 24-1s-3w.

COTTON COUNTY—Silurian Oil Co. et al, Chambers 5, cnl ne nw 2-2s-10w.

CREEK COUNTY—Bryan Pet., Fleetwood 1, cel se ne, 15-16-12e.

MARSHALL COUNTY — Horseman and Dennis, Adams 1, sw ne ne 11-5s-5e.

MUSKOGEE COUNTY — E. Mills et al, Kelly 3, cwl ne sw sw, 13-13-18e. W. E. Williams, Davidson 1a, (owdd) cnl se sw, 24-15-17e.

NOBLE COUNTY—Magnolia, Sams 4, se sw sw 15-21-2w; Roberts 1, ne se 21-21-2w.

OKLAHOMA COUNTY—Indian Territory Illuminating, et al, Mary Jones 1, nw se sw, 1-11-3w; Mary Jones 2, ne se sw, 1-11-3w; Jones-Community 2, ne sw sw, 1-11-3w; Jones-Community 3, nw sw sw 1-11-3w. Wirt Franklin et al, Theimer 3, se ne se 2-11-3w. Cromwell-Franklin et al, Trosper Park 18, sw nw sw, 12-11-3w. Cromwell-Franklin, Trosper Park 19, sw 12-11-3w. Coline Oil Co., Olds 10, se sw nw, 24-11-3w. Coline Oil Company, Warren 9, se sw sw 18-11-2w. Indian Territory, et al, Farley 4, ne nw nw 19-11-2w; Salasman 2, sw nw 32-11-2w. Skelly, Hoopes 7, se ne ne 31-11-2w. Skelly, Hoopes 8, sw ne ne 31-11-2w. T. B. Slick et al, Hoopes 6, nw se ne 31-11-2w. T. B. Slick et al, Hoopes 7, ne se ne 31-11-2w. Indian Territory Illuminating, et al, Salasman 3, sw nw nw 32-11-2w; Salasman 4, nw sw nw, 32-11-2w. The Prairie and T. B. Slick, Wilcox 1, nw sw 32-11-2w.

OKMULGEE COUNTY—W. B. Pine, Bradford 5, (owdd) cel nw se 19-14-14e. L. C. Wheeler et al, Fish 3, sw ne ne, 6-15-12e.

PAWNEE COUNTY — Cochran et al, McFadden 1, ne sw 15-23-5e. L. C. Wheeler et al, Fish 3, sw ne ne 6-15-12e.

POTTAWATOMIE COUNTY — Magnolia, Richardson 3, se sw sw 15-7-4e; Singletary 2, sw se sw 15-7-4e; Walker 1a, (twin) ne nw ne, 21-7-4e. Texas Comapny et al, Johnson 1, se sw ne, 26-9-5e.

SEMINOLE COUNTY — Empire, Fish 1, "C," nw sw ne 19-7-8e. Sinclair, Phillips 9, (twin) sw ne se 5-7-7e. Sinclair, Phillips 10, (twin) nw se ne, 5-7-7e. Gypsy, Renton 6, se ne ne 11-7-6e. Texas Co., Hahjoche 2, nw ne 17-6-6e. Mid-Continent, Harjoche 4, sw se 8-6-6e. Magnolia, Wisey 1, sw ne sw 9-6-6e. W. B. Pine, Charty 1, ne nw sw, 16-6-6e. W. B. Pine, Charty 2, nw sw, 16-6-6e. Burke-Greis Corp., Nitchey 6, nw ne se 18-5-8e. W. B. Pine, Cheparney 1, se ne sw 12-5-7e.

WAGONER COUNTY—W. A. Dodd et al, Atkins 7, se ne se 14-17-16e.

KANSAS

McPHERSON COUNTY—Shell, Stuckey 3, sw se se 9-21-3w. Shell, Stuckey 2, nw se se, 9-21-3w. Independent, Stuckey 1, cel 5-21-3w. Mid-Kansas Oil & Gas, Voshel 6, sw ne 9-21-3w. Mid-Kansas, Voshel 5, nw sw ne, 9-21-3w.

SEDGWICK COUNTY—Shell, Fischer 6, ne se se 15-26-2e. Continental and Gypsy, Shawver 10, se sw nw 7-26-1e.

STEVENS COUNTY—McNabb et al, Reamy 1, sw 11-33-38w.

ARKANSAS

UNION COUNTY—Magnolia, P. C. Grayson 1, 230 ft s, 540 ft w, ne c se se, 21-15-19. H. L. Hunt, Inc., Pratt 6, 150 ft n, sw c ne ne ne, 7-18-15.

CALIFORNIA

BUTTONWILLOW — Lincoln Drilling Co., No. 1, 17-29-24.

KERN RIVER—C. C. M. O. Co., No. 31, 23-28-27.

LONG BEACH—The Texas Co., Chamberlin 2, 29-4-12.

MIDWAY—Standard Oil Co., Midway 45, 9-32-24.

MT. POSO—The Texas Co., Alta Vedder 4, 4-27-28. C. C. M. O. Co., Mon 1, 26-27-28.

RICHFIELD—Continental Oil Co., Stern 2, 33-3-9.

SAN BERNARDINO COUNTY—Keck and Hall, Belyea 1, 32-2-8.

SANTA FE SPRINGS—Bell View Oil Synd., Santa Fe 5, 6-3-11.

SUNSET—Doyle-Clune Oil Co., No. 1, 8-11-23.

LOUISIANA

CALCASIEU PARISH—Texas-Gulf Sulphur Co., Vinton, Lutcher Moore 10, 19-9s-12w, 460 ft e and 520 ft n of sw c se; Lutcher Moore 11, 19-9s-12w, 680 ft w and 670 ft s of ne c sw. Vinton Pet. Orange, Matilda Gray 6, 33-10s-12w, 330 ft n and 50 ft w of se c sw ne.

IBERVILLE PARISH—Standard Oil Co. of La., Shreveport, Cyrus Case et al 1, 79-8s-8e, approx. 1710 ft w and 660 ft n of se c of Sec; A Wilberts Sons Lbr. & Shingle Co. 6, 74-7s-10e, 2812 ft n and 1110 ft w of se c sw se.

OUACHITA PARISH — Chauvin Gas Co., Monroe, Slagle-Johnson 4, 48-18n-4e, 647 ft w and 2803 ft s ne c Sec.

RICHLAND PARISH—Arkansas-La. Pipe Line Co., Shreveport, E. A. & F. B. Sartor B-3, 24-16n-5e, 300 ft n and 330 ft e of sw cor. ne ne. Franklin O&G Co., Monroe, F. N. Smith 1, 24-16n-6e, 356 ft e and 312 ft n of center of Sec.

SABINE PARISH — Mr. J. M. Bridges, Pleasant Hill, McWilliams Hrs. 1, 30-10n-11w, 330 ft s and 330 ft e of nw cor. of Sec. Lide et al, Shreveport, Sabine Lbr. Co. 1, 31-8n-12w, 330 ft s and 330 ft e of nw c ne se. Magnolia, Shreveport, McLeroy 2, 33-10n-12w, 230 ft s and 200 ft w of ne r w½ se sw.

TEXAS

ARCHER COUNTY — Seitz, Comegys & Seitz, Inc., Wichita Falls, J. D. Parkey, 80, 1, B 21, DCSL sur, 1800 ft from n and 150 ft from e line. Panhandle Refg. Co., Wichita Falls, H. O. Prideaux, 38, F1, A. Rohus sur, 150 ft from e and 450 ft from s line. Perkins & Cullum, Wichita Falls, J. T. Richardson, A, 100, 1, EL&R sur, 150 ft from n and w lines; J. T. Richardson, 120, 1, B 15, J. Scott sur, 150 ft from s and w lines. Lawson & Duke, Tulsa, Richardson, 80, 6, 2425, TE&L sur, 300 ft s of No. 5; 7, 300 ft s of No. 6; 8, 300 ft e of No. 4; 5, 300 ft s of No. 3. Barnsdall Oil Co., Tulsa, T. B. Wilson, 200, B 19, B. Howard sur, 150 ft from e and 868 ft from s line. L. T. Burns, Wichita Falls, J. H. Turbeville, 160, 10, No. 152 R. Carson sur, 300 ft s of No. 8. T. F. Hunter, Wichita Falls, A. M. Kunkel, 20, B2, G. W. Stell sur, 311 ft n of No. 1. Perkins & Cullum, Wichita Falls, L. F. Wilson, 260, 1, S 112, B B, Amer. Trib. sur, 3090 ft from e and 1770 ft from s line. Douglas Oil Co., Wichita Falls, W. J. McClure, 100, 6, B 13, Crawford sur, 300 ft s of No. 5. Kisk Oil Co., Wichita Falls, A. M. Kunkel, 20, 1B, BBB&C sur No. 3, 450 ft from e and 150 ft from s line. L. T. Burns, Wichita Falls, H. F. Harmel, 40, 1, L. M. Meade sur, 300 ft n of No. 1.

ANDERSON COUNTY—Humble, Houston, D. Stephenson, 320, 1, M. Roberts sur, 150 ft from s and e lines.

BROWN COUNTY — O. H. Shoup, Jr., Coleman, J. Byler, 102, 13, S 43, T&NO sur, 1100 ft from n and 1125 ft from e line. Young Bros. & Alexander & Woodley Pet. Corp., Fort Worth, W. H. Kilgore, B, 75, 1, N. B. Mitchell sur, 150 ft from n and e lines. S. B. Owens, Inc., Brownwood, J. E. Whiteside, 80, 5, No. 627 C. B. Banister sur, 1050 ft from n and 720 ft from w line; S. N. Cannon, 80, 9, No. 3 W. Ahrenbeck sur, 150 ft from w and 850 ft from s line. Paramount Oil Royalties, Inc., Brownwood, H. J. Guyer, 30, 2, S 22, HT&B sur, 150 ft from s and e lines. E. L. Smith Oil Co., Mexia, L. A. George, 100, 24, S 42, R. C. Chaddick sur, 1650 ft from s and 550 ft from e line. A. B. Gordon Oil Co., Inc., Dallas, S. B. Cannon, 40, 7, W. Ahrenbeck sur, 350 ft w of No. 4. Eastland Oil Co. et al, Fort Worth, W. H. Pierce, 80, 1, S 44, T&NO sur, 150 ft from n and w lines. Syndicate Oil Corp., Amarillo, R. Wiess, 160, 1, S 41, HT&B sur, 150 ft from s and w lines of se¼ of sw¼. W. E. Duffy et al, Fort Worth, L. A. George, 17, 3, S 42, Chadwick sur, 150 ft from n and w lines.

BEXAR COUNTY—Swearingen Oil Co., San Antonio, A. J. Swearingen, 100, 1, No. 52, 151 ft from n and 1160 ft from e line. I. L. Dingman, San Antonio, W. Kelso, 269, 1, J. M. Urriegas sur, 1400 ft from e and 822 ft from s line.

BAYLOR COUNTY — Perkins & Cullum, Wichita Falls, W. D. Howe, 135, 1, 2452 TE &L sur, 1078 ft from e and 1555 ft from s line Sec.. Consolidated Oil Co. & Petroleum Prod. Co., Wichita Falls, W. H. Portwood, 80, 10, 1281 TE&L sur, 300 ft n of No. 8 sw¼; 11, 300 ft e of No. 5, sw¼.

BEE COUNTY—Texas Co., Houston, S. F. Lassiter, 170, 1, J. M. Urango sur, 2100 ft from nw and 980 ft from sw line.

BURNETT COUNTY—D. L. Rose, Waco, J. S. Smith, 1, I. Reynolds sur, 500 ft from e and 900 ft from s line.

CALLAHAN COUNTY—Humble, Cisco, I. N. Jackson, 332, D1, Pre-Emption sur, 150 ft from s and 3450 ft from e line; 320, E1, S, 17 E. T. Ry. sur, 150 ft from n and w lines of n½ of Sec. Moutray Oil Co., Abilene, P. G. Hatchett, 320, 2, S, 20, D&D Asy. sur, 750 ft e and 150 ft from s line. A. B. Stock, Cisco, J. H. Ogle, 40, 8, 2974, TE&L sur, 750 ft from n and 450 ft from e line. B. A. Duffy, Abilene, Cutbirth, 80, 1, S, 8, T&NO sur, 660 ft from n and 3300 ft from e line Sec.

COLEMAN COUNTY—Prairie O&G Co., Ranger, A. Seale, 1, No. 5, T&NO sur, 200 ft from n and e lines. Agnew & Sons. Inc., Coleman, S. E. Switzer, 100, 1, B, 8, Wm Farris, No. 279, 300 ft from e and 165 ft from s line. Atlantic Oil Prod. Co., Dallas, M. T. Overall, 40, B2, S 9, B 1. GH&H sur, 200 ft from n and w lines. Roth & Faurot, Valera, W. J. Stevens, 71, 5, B 5, CCSL No. 57, 150 ft from n and w lines. Texas American Synd., Dallas, W. F. Matthews, 40, 1, S 4, B 519, San Augustine, 705 ft from n and 681 ft from w line. Syndicated Oil Corp., Amarillo, Miller, 200, 1, B 24, Ft. B. C. S. K. sur, center of s line of Blk. 37.

CHAMBERS COUNTY—Mills Bennett Prod. Co., Houston, J. F. Wilburn, 10, 3, H. Griffith sur, 100 ft w of No. 2. Yount-Lee Oil Co., Beaumont, Fisher, 1, Wm. Bloodgood sur, 2480 ft from n and 2021 ft from e line Sur.

CHILDRESS COUNTY — Continental Oil Co., Wichita Falls, T. J. Johnson, 640, 1, S 580, B H, W&NW sur, 660 ft from n and e lines of Sec.

CARSON COUNTY—Gulf Prod. Co., Fort

Careful Welding
Assures Uniformly
Strong Pipe
The significance of consistently sound welds in every length of Republic Steel Pipe cannot be over-emphasized . . . for sound welds assure uniform strength, and are the backbone of reliable pipe service. Welds that do not open when the pipe is threaded. Welds that hold together when pressure is exerted either from inside or outside. Tight, strong, solidly closed welds that mean safe, leak-proof piping and lasting, trouble-free service. This is a certainty when Republic Steel Pipe is used.
REPUBLIC
IRON & STEEL CO. YOUNGSTOWN O.
STEEL PIPE

Worth, Burnett Est. 80, 1, S 35, B 4, I&GN sur, 660 ft from s and e lines of Sec.

CLAY COUNTY — Saxet Oil Co., Petrolia D. L. Ross, 64, B 27, PCSL sur, 210 ft se of No. 6. Stine C. 68, 63, B 2, PCSL sur, 200 ft se of No. 15.

DUVAL COUNTY—Everett & Suladie, Mirando, W. R. Peters, 40, 1, S 33, 230 ft from w and 165 ft from s line. Allied Gas Co. Inc., Laredo, J. T. Dinn, 532, 1, 668, 1500 ft from s and e lines. Trapshooter-Reilly O&R Co., San Antonio, C. Hahl, 42, 4, B 26, No. 250, 170 ft from n and 330 ft from e line. Blk. 26. Humble, Houston, Kohler, 41A, SK&K No. 165 , 2970 ft from s and 330 ft from e line.

EASTLAND COUNTY—Lone Star Gas Co., Dallas, C. H. Fee, 80, 1, S 80, H&TC sur, 660 ft from n and w lines of n½ of ne¼. Hoffman & Page, Eastland, O. E. Lyerla, 74, 4, S 27, B 2, H&TC sur, 150 ft s of center of n line. Texas Co., Cisco, W. T. Hitson, 80, 2, S. P. Ry. sur No. 2, 646 ft from w and 674 ft from s line.

ERATH COUNTY—Peters, Beard & Gilliland, Tulsa, J. E. Smith, 366, 1, B 24, J. M. Espinosa sur, 400 ft from n and w lines. J. B. Moring, 221, 2, M. Goff sur, 400 ft w of center of e line. W. B. Carey, 198, 3, B 25, J. M. Espinosa sur, 360 ft n of No. 1. T. J. Mauldin, 250, 1, B 23, J. M. Espinosa sur, 400 ft from n and w lines.

FREESTONE COUNTY — O. W. Killam, Laredo, R. M. Edwards, 272, 1, J. Sanches sur, 150 ft from n and 1250 ft from e line.

GUADALUPE COUNTY — Sun Oil Co., Dallas, C. Knobloch, 75, 3, J. W. Robinson sur, 150 ft from nw and 460 ft from ne line; 4, 150 ft from se and 460 ft from ne line. Gulf Production Co., Houston, Corrected Location. Posey-Baker, 70, 1, J. R. Robinson sur, 150 ft from nw and 500 ft from sw line. Empire G &F Co., Wichita Falls, A. E. Dowdy, 40, 2, J. Darst sur, 150 ft e of center of w line; 3 300 ft s of No. 2. Magnolia, Dallas, A. Knodel, 100, 1, J. W. Robinson sur, 150 ft from n and w lines. R. Miller, 92, 2, J. B. Alexander sur, 150 ft from nw and 450 ft from ne line. Texas Co., Houston, A. E. Dowdy, 100, 1, J. Darst sur, 150 ft from n and e lines. H. Willie, 73, 2, J. Darst sur, 150 ft from n and 750 ft from w line. M. E. Roamel, 100, 1, Jas. Hodges sur, 150 ft from n and e lines.

GRAY COUNTY—D. B. Tripplehorn, Fort Worth, J. S. Morse, 80, 1, S 17, B A9, H&GN sur, 330 ft from s and w lines of se¼. Guernsey O&G Co., Pampa, W. W. Harrah, 120, 2, S 150, I&GN sur, 330 ft from n and e lines of ne¼ of ne¼.

HOWARD COUNTY—American Maracabio Co., Fort Worth, W. R. Settles, A, 100, 4, S 6, B 32, T&P sur, 1014 ft from n and 330 ft from w line. W. R. Settles, D, 50, 2, S 135, B 29, W&NW sur, 330 ft from n and e lines.

JACK COUNTY—Coombs & Rogers, Wichita Falls, Plemmons, 60 ,1, E. Smith sur, 150 ft s of center of n line. Saxet Oil Co., Wichita Falls, S. E. Maxey, 40, 2, S 2, S.P. Ry sur, 300 ft s of No. 1. Panhandle Refg. Co., Wichita Falls, Daniels, 150, 4, I. Hughson sur, 600 ft w of No. 3. Harper Pet. Co., Bryson, W. T. Ezzell, 40, 4, I. Hughson sur, 500 ft n of No. 2.

KENDALL COUNTY — A. J. Borget, San Antonio, W. Haag, 1, W. Avery sur, 3417 ft from n and 2163 ft from w line.

LIBERTY COUNTY—Cranfill & Reynolds, Cisco, T. G. Davis, 806, 1, D. L. Kokernet sur, 300 ft from e and 100 ft from s line.

MITCHELL COUNTY—Gibson & Johnson, Fort Worth, Scott, 40, 3, S 14, B 17, S. P. Ry. sur, 300 ft from n and w lines of Sec.

MONTAGUE COUNTY—Bridwell & Continental Oil Co., Wichita Falls, D. E. Cunningham, C, 60, 4, T. R. Edmondson sur, 5360 ft from s and 1467 ft from e line Sur.

PECOS COUNTY—Atlantic Oil Prod Co., Dallas, W. T. Shearer, 80, 1, S 107, B 10, H&GN sur, 330 ft from s and w lines of Sec. Humble Oil & Ref. Co., Wichita Falls, Stockton Co., 640, 2, S 48, B 11, H&GN sur, 2640 ft from n and 330 ft from w line Sec. World Oil Co., Fort Worth, University, 40, 2, S 31, B 16, Univ. sur, 330 ft from n and w lines of nw¼ of ne¼. Southern Crude Oil Purchasing Co., Fort Worth, J. H. Tippett, 75, 1, S 61, B 194, GC&SF sur, 150 ft from n and 382 ft from e line. Phillips Pet. Corp., Bartlesville, Okla., H. Munroe, 3, S 39, B 194, GC&SF sur, 3960 ft from n and 1055 ft from e line. Buell & Hagan, San Angelo, Pecos Valley Oil Co., 160, 4, S 22, B 10, H&GN sur, 550 ft from s and w lines of nw¼. Gulf Prod. Co., Fort Worth, M. A. Smith, 640, 23, S 28, B 194, GC&SF sur, 2310 ft from w and 1650 ft from s line Sec. I. G. Yates, 27, RCSY sur, 2890 ft from w and 3300 ft from s line Sec.

REFUGIO COUNTY—Saxet Oil Co. Houston, Heard, 40, 1, Blk. 8, Lot 2, Refugio sur, center. H. Ryals, 30, 1, Refugio sur, 200 ft from n and w lines. Heard, 40, 1, Blk. 8, Lot 2, Refugio sur, 165 ft from s and e lines. Powers, 1, Sunshine Add. sur, 146 ft from w and 246 ft from s line, Blk. 3. Fox, 1, Refugio sur, 166 ft from n and 16 ft from w line, Blk 95. Serafino, 1, Refugio sur, 145 ft from w and 150 ft from s line, Blk 5. C. Heard, 50, 11, Refugio sur, 750 ft from n and 150 ft from w line, Blk. 3; Blk. 74, 1, Refugio sur, 166 ft from n and 16 ft from w line. G. C. Dixon, Refugio, F. A. Jurica, 285, 1, Blk. 37, E. Lopez sur, 150 ft from s and w lines. Morgan Oil Corp., San Antonio, Johnson, 1, Blk. 6, Refugio sur, 249 ft from n and 142 ft from w line. E. E. Swift, 2¼, 1, Blk. 7, Refugio sur, center. T. P. Morgan, San Antonio, G. Strauch, 2½, 1, Blk. 8, Refugio sur, center.

RUSK COUNTY—Magnolia Pet. Co., Dallas, D. Wylie, 485, 1, A. Morrie sur, 300 ft s of center of n line..

SHACKLEFORD COUNTY—F. C. Morton, Albany, W. H. Green, 200, 1, 812, TE&L sur, 1317 ft from nw and 1343 ft from ne line of Sec. Wooten & McFarling, Moran, Hickman, 80, 2, S 16, L.A.L. sur, 300 ft ne of No. 1. W. S. Wooten, Moran, Hickman, 80, 2, S 16, L.A.L. sur, 300 ft e of No. 1.

TAYLOR COUNTY—Conder Pet. Co., Abilene, K. Stoker, 1, S 257, B 64, H&TC sur, center of nw¼.

THROCKMORTON COUNTY—Geo. Mollenkopf, Woodson, J. E. Hughes, 20, 3, 920, TE&L sur, 1383 ft from e and 1083 from n line Sec. Less Combest et al, Mineral Wells, K. Leathers, 80, 1, 934, TE&L sur, 1211 ft from w and 150 ft from s line Sec. J. E. Hughes, 80, 7, 902, TE&L sur, 2016 ft from s line Sec; 8, 2416 ft from w and 150 ft from s line Sec.

WICHITA COUNTY—Kisk Oil Co., Wichita Falls, J. L. Waggoner, 5, 1, B 1, M. A. Willis sur, 150 ft from s and e lines.

WHEELER COUNTY—Lone Star Gas Co., Dallas, O. Hosher, 160, 1, S 60, B 17, H&GN sur, 660 ft from s and w lines of Sec. Sidney Johnson, Shamrock, Curry, 40, 2, S 53, B 23, center of nw¼ of ne¼. Martin & Dubose, Shamrock, Close, 40, 1, S 83, B 23, H&GN sur, center of nw¼ of ne¼.

YOUNG COUNTY — Mid-Texas Pet. Co., Eliasville, B. M. Childress, 100, 4, 1210 TE&L sur, 150 ft s of center of n line. H. W. McGee, Eastland, I. C. Gibbs, 200, 1, S 27, TE&L sur, nw center. E. G. Christie, Olney, A. E. Alsop, 60, 1, 191, TE&L sur, 150 ft from s and w lines. Panhandle Ref. Co., Wichita Falls, J. G. Taack, 160, 1, 264, TE&L sur, 785 ft from n and 150 ft from w line of Sec. Gersuch Oil Co., Abilene, O. W. Matthews, 80, 4, A, Rohus sur, 150 ft from s and w lines. Transcontinental Oil Co., Tulsa, W. T. Donnell, 106, 1, J. T. Mulanax sur, 360 ft from e and 960 ft from s line. W. R. Cooper, Olney, J. P. Dunaman, 100, 1, 163, TE&L sur, 150 ft from n and 1536 ft from e line. Jno. G. Menke, Wichita Falls, H. E. Smith, 40, 1, 73, TE&L sur, 150 ft from n and e lines. Humble Oil & Ref. Co., Cisco, W. T. Hightower, 116, 1, 190, TE&L sur, 150 ft from n and 450 ft from e line. T. F. Hunter, Wichita Falls, H. H. Benson, 47, 1, 157, TE&L sur, 150 ft from s and w lines. Prairie Oil & Gas Co., Ranger, C. F. Kunkel, 7, S 4, BBB&C. T. G. Shawe Oil Corp., Fort Worth, J. Kisinger, 80, 1C, Jno Conner sur, 194 ft from e and 201 ft from s line. Christie Bros., Wichita Falls, J. Kisinger, 20, 2, Jno. Conner sur, 300 ft from se of No. 1. Panhandle Ref. Co., Wichita Falls, N. Prideaux, 100, D8, I&GN sur, 300 ft e of No. 6. Henryetta Drlg. Co., Graham. A. L. Lynn, 34, 1, J. A. Aynesworth sur, 150 ft from e and 650 ft from s line. E. B. Lawson, Tulsa, J. A. Leberman, 40, 2, 151, TE&L sur, 300 ft e of No. 1. W. H. Anderson, Olney, J. L. Castleman, 40, 1, 72, TE&L sur, 150 ft from n and e lines. Carey & Martin, Wichita Falls, E. Hill, 34, 1, 195 TE&L sur, 150 ft from n and e lines. D. L. Wolf, Olney, E. Hill, 22, 3, 195 TE&L sur, 150 ft from s and e lines.

COMPLETIONS

(Continued from page 234)

Paramount Oil Royalties, Buyer 2	..	*	1130
L. H. Wentz et al, Mitcham 2	....	*	1295
CALLAHAN COUNTY—			
Campbell Oil Corp., Kennard 2	....	*	1759
Redmond et al, Chrane 2	.....	*	2000
The Texas Co., George 1	.....	*	1018
COLEMAN COUNTY—			
Dick Barkley et al, Norton 1	....	*	2060
Diana Oil Co., Morris 2	.....	35	2049
Simpson-White & Pinkerton, Wells 1	.....	¶2	2275
Tidal Oil Co., Stewardson 2	.....	40	1446
ERATH COUNTY—			
Lone Star Gas Co., Cage 2	.....	*	4001
SHACKELFORD COUNTY—			
Big State Oil Co., Russ-Webb 15	...	*	1230
Hart & Gist et al, Clark 5	.....	25	688
Roberts & Pool, Mathews 1	.....	*	1244
Simms Oil Co., Lones 1-A	.....	*	990
Worth Pet. Co., Clark 1	.....	¶1-50	661
STEPHENS COUNTY—			
Lone Star Gas Co., Ellis 1	.....	¶½	3630

PAUL E. MAHAFFEY

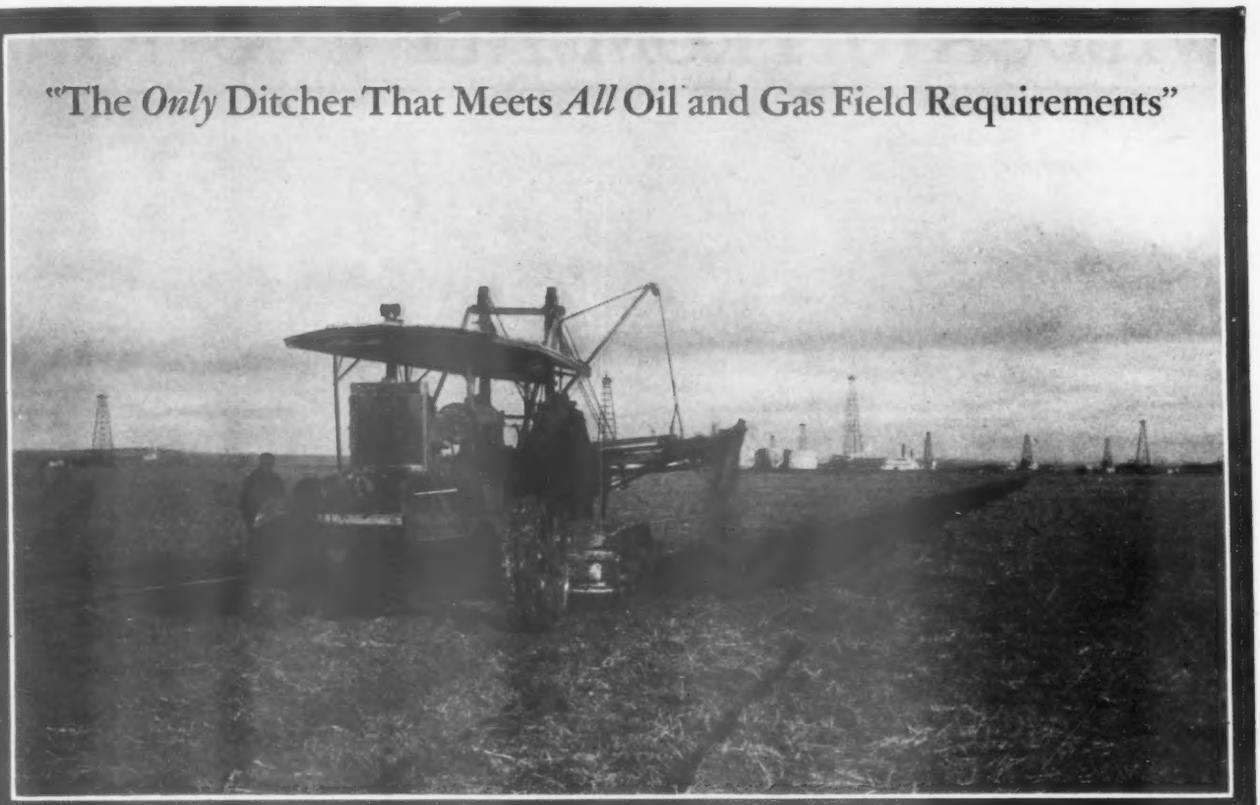
Happy Belting Company of Tulsa, of which Paul E. Mahaffey is president, recently celebrated the tenth anniversary of its service to the petroleum industry. The company was founded by Mr. Mahaffey to sell belting and to follow up sales with service in the field and in line with this policy branch offices and warehouses are maintained at Seminole, Oklahoma, and Smackover, Arkansas.

The Seminole branch is in charge of Leo C. King and the Smackover branch is supervised by A. L. Oliver, store manager. Happy Belting Company manufactures Happy endless belt and also Happy Vertical Tightener as well as the Happy automatic band wheel Idlers.

A. F. Nixon is vice president and sales manager, W. H. Gorey is vice president and office manager, Roy C. Lindley is treasurer and assistant sales manager, and D. J. Andrews is secretary.

Kemmerer, Wyo. — Wyoming Carbonizing & Briquetting Company has all preliminary arrangements completed for its million dollar plant on which construction work will be started near here in early spring. Charles Peter, managing director of the company, is now in New York and reports that a market for the local plant has been secured far in excess of its initial capacity and that the plant will no doubt have to be at least doubled within two years. Waste coal from the mines near here and black oil from the La Barge field for a binder will be the principal constituents of the blocks.

"The *Only* Ditcher That Meets *All* Oil and Gas Field Requirements"



"WE CHOSE BUCKEYES ... *because They Cut More Ditch per Hour*"

In this statement Mr. Newton Blackwood of the Champlin Refining Company, Enid, Oklahoma, gives one of the principal reasons why the world's oil and gas fields prefer Buckeye pipe line ditchers—and use more of them than all other makes combined.

This firm owns three No. 4 Buckeyes which are employed for cutting variable size trenches—for 2″ to 20″ pipe, at depths ranging from 20″ to 48″. Last December they reported that these machines dug approximately 300 miles of ditch in Gray and Corsair Counties during the past twenty months, each of them *averaging* 3200 lineal feet in 8 hours. One, however, cut 9000 feet of 20″ trench in 11 hours, while another delivered 7800 feet of 20″ by 42″ ditch while laying a Texas water line.

Summarizing their opinion of Buckeye performance, the Champlin Refining Company says that their experience proves these ditchers to be thoroughly dependable, efficient and economical. You will find them equally profitable.

The BUCKEYE TRACTION DITCHER CO.
Findlay, Ohio
There's a Buckeye Sales and Service Office Near You

for over thirty years
Buckeye

WILDCATS FROM ALL SECTIONS

WEST TEXAS

Completion

Company, Well and Location	Initial Production Bbls.	Depth
PRESIDIO COUNTY—		
Texas Pacific Coal & Oil Co., W. W. Bogel 1	*	4365

ANDREWS COUNTY—Deep Rock Oil Co. et al's A. R. King 1, materials; W. J. Mathis 1, materials.

BORDEN COUNTY—W. A. Moncrief and Humble O&R Co.'s Munger 1, elev 2433 ft, top salt 1090 ft, dr 2690 ft.

BREWSTER COUNTY — Ed. Bateman & Co.'s Neville 1-A, sd 2782 ft. E. L. Chapman et al's Skinner 2, sd 1010 ft. Trans-Pecos Oil & Gas Co. (was Grastorf's) A. A. Jones 1, dr 1455 ft.

COCHRAN COUNTY—R. A. Westbrook & Co.'s Slaughter 1, top lime 3837 ft, dr 3930 ft.

COKE COUNTY—Mid-Kansas O&G Co.'s Lackey 1, elev 2152 ft, sd 4255 ft.

CROCKETT COUNTY—Cushing Gasoline & Ref. Co.'s Powell 3, elev 2660 ft, top salt 1030 ft, top lime 2425 ft, testing 1200 ft, oil in hole 2486-2538 ft. Empire Gas & Fuel Co.'s Shannon 1, elev 2691 ft, top salt 1130 ft, top lime 2468 ft, co after shot and pb from 2660 ft. Magnolia Pet. Co.'s Hoover 1, dr 445 ft.

CULBERSON COUNTY—Grisham-Hunter Corp.'s Fee 1, elev 3579 ft, top Delaware 2607 ft, dr 3390 ft; Seay 1, dr 1765 ft.

ECTOR COUNTY—Cosden Oil Co.'s University 1-A, elev 2914 ft, top salt 1055 ft, top lime 3130 ft, dr 3200 ft; University 1-B, elev 2890 ft, top salt 1095 ft, top lime 3304 ft, dr 3545 ft. C. P. Davis et al's T. G. Hendrick 1, rig. Gulf Prod. Co.'s University 1, lcn. Landreth Prod. Corp.'s University 1-T, elev 2871 ft, top salt 1215 ft, top lime 3105 ft, making gas, dr by tools 3165 ft. Llano Oil Co. et al's T. S. Hogan 1, elev 2914 ft, dr 1180 ft. Humble-Penn-Atlantic's Kloh 2-D, R. L. York 2 and 3, dks. Penn Oil Co. and Devonian Oil Co.'s Leon Goodman 1, lcn.

EL PASO COUNTY — Inter-Coastal Oil Co.'s Malone 1, sd 1481 ft.

FISHER COUNTY—Cranfill-Reynolds Co.'s Johnson 1, machine. Magnolia's Alice Lee 1, elev 1827 ft, dr water sand 4610-40 ft. Mid-Kansas-Phillips Pet. Co.'s Stephenson 1-A, elev 1919 ft, top lime 3228 ft, sd hfw 4005 ft. Roeser-Pendleton, Inc. and Amerada's Waco Bank 1, elev 1779 ft, fsh 3161 ft.

GAINES COUNTY — Cranfill-Reynolds and La. Oil Reg. Corp.'s Ralph 1, elev 3475 ft, top salt 1657 ft, dr 3460 ft.

GARZA COUNTY—H. C. Cate and Pandem Oil Corp.'s Stoker 1, elev 2452 ft, top salt 810 ft, top lime 2255 ft, sd 3018 ft.

GLASSCOCK COUNTY — California Co.'s Currie 3, elev 2664 ft, coring 3565 ft; Jones 1, dk. Continental Oil Co.'s Phillips 1, lcn. FHE Oil Co.'s B. B. Cox 1, dk. Kirby Pet. Co. et al's Baker 2, sd 2281 ft; Baker 3, elev 2599 ft, testing lime 2165-73 ft. Luna Oil Co.'s Edwards 1, elev 2548 ft, top lime 2155 ft, sd hfw 2385 ft. Simms Oil Co.'s Coffee 2, sd 2050 ft; Coffee 3, rig. Ed. Timberlake and M. Snyder's Meek 1, elev 2792 ft, sd 1300 ft. World Oil Co.'s McDowell 2-C, elev 2543 ft, sd 2340 ft.

TOM GREEN COUNTY—J. E. Ellis et al's G. W. Lewis 1, co after shot 20 qts, 428-43 ft. D. A. Smith and Fitzgerald's Bennett 1, sd bad hole 2447 ft. D. W. Wiley et al's Abe Mayer 1, sd 250 ft.

HOCKLEY COUNTY—World Oil Co.'s Ellwood 1, elev 3363 ft, top salt 2127 ft, dr lime 4620-90 ft.

HUDSPETH COUNTY — The California Co.'s University 1, elev 5109 ft, dr 3260 ft.

IRION COUNTY—Atlantic and Beasley's Sawyer 1, elev 2419 ft, top salt 810 ft, dr 1370 ft. J. B. Crawford et al's Nutt 1, sd 1105 ft. Cromwell et al's Fuller 1-A, sd 870 ft. Glenn et al's Tankersley 1, lcn. Irion Oil Co.'s Tankersley 1-A, sd 200 ft. Kingwood Oil Co. et al's Sugg 1, elev 2334 ft, pb from water 7818 to 7682 ft and given four shots. J. A. Starkweather et al (Concho Oil Co.'s) Lindley 1, dr 1640 ft. P. H. Williams et al's Ashe 1, elev 2726 ft, top lime 1712 ft, sd 7074 ft.

JONES COUNTY — Continental Oil Co.'s Phillips 1, dr lime 2725 ft. Tex-Mex O&G Co.'s King 1, sd 1560 ft. F. E. Shaheen et al's King 1, elev 1629 ft, sd 2204 ft. W. S. Ware et al's Neuman 2, sd 1260 ft.

KENT COUNTY—Atlantic Oil Prod. Co. unit plan's Wallace 1, top salt 330 ft, ur cas 1963 ft.

LOVING COUNTY—California Co.'s Wheat 1, lcn. Humble O&R Co. unit plan's Kloh 1-C, elev 2814 ft, top salt 1230 ft, dr by junk, td 3650 ft. Lockhart & Co.'s W. W. Hubbard 5, dr 835 ft; Lepp 2, sp and sd; Wheat 1-H, elev 2713 ft, top Delaware 4152 ft, top black lime 5025 ft, fsh cas 5040 ft.

LYNN COUNTY—Hart Oil Corp.'s Edwards 1, elev 3128 ft, top salt 2140 ft, sd 5035 ft.

MENARD COUNTY—Barnett et al's Callan 2, sd in gas sand 1267-67 ft. Carl Cromwell and Duffy's Winslow 2, dr 395 ft.

MITCHELL COUNTY—Magnolia Pet. Co.'s D. H. Snyder 1, dr 2150 ft. Teas & Wheeler's Radford 1, elev 2223 ft, cem cave 4818 ft.

NOLAN COUNTY—Gibson & Johnson's S. P. Boyd 1, elev 2126 ft, sd hfw 2985 ft.

PECOS COUNTY — Ed. Bateman et al's Cordova 1, elev 2393 ft, top salt 705 ft, sd 1694 ft. M. H. Black et al's Pecos Valley 1, sd 720 ft. Buell-Hagan & Pope's Byrne 1, elev 2512 ft, sd after shot, td 1400 ft. Cardinal Oil Co.'s Toborg 2, testing sand 316-96 ft; Toborg 3, testing sand 326-390 ft; Toborg 4 and 5, lcns. E. L. Chapman et al's Streety 1, elev 2653 ft, ur cas with hfw 1675-95 ft. Cosden Oil Co.'s McDonald 1, elev 2459 ft, sd 2015 ft. Carl Cromwell and K. D. Harrison's White-Baker 1, elev 2373 ft, sd 1618 ft. Cranfill-Reynolds Co. et al's Masterson 1-B, machine. Dixie Oil Co.'s McKenzie 1, sd 330 ft; Toborg 1, dr 140 ft. Fisher & Lowrie's R. D. Webb 1. lcn. Freeman & Miller's Pecos Valley 1, elev 2446 ft, top salt 1240 ft, sd 1710 ft. Spot Geyer & Frates, Inc.'s Sellman 1, top salt 830 ft, dr 885 ft. Humble O&R Co.'s Cunningham 2, rig. Hussman Oil Co.'s Estes 1, sd 510 ft. J. L. Kennedy et al's Kennedy 1, elev 3217 ft, sd 2506 ft. Independent O&G Co.'s Phelps 1, elev 2615 ft, cem cas 2250 ft. Kirby Pet. Co. et al's Belgrade 1, elev 2497 ft, top salt 845 ft, ur cas 1395 ft. Mauch & Krogen's Holmes 1, sd 1510 ft. Mazda Oil Corp.'s Cordova 1, elev 2371 ft, fsh 1275 ft. R. E. Moore et al's Arnold 1, elev 3860 ft, sd 1615 ft. J. D. O'Mara et al's Bennett 1, elev 2315 ft, sd 875 ft. Pecos Crude Oil Pur. Co.'s Pecos Valley 4, dr 710 ft. Perren et al's Eaton 2, lcn. Phillips Pet. Co.'s Byrne 1, dr 615 ft. Sides & Cloyd's Blackstone-Slaughter 1, sd 365 ft. Southern Crude Oil Pur. Co.'s McKenzie 1, dr 190 ft; Tippett 1, machine. Stine & Griffith's McKenzie 1, elev 3156 ft, top salt 1330 ft, fsh 1540 ft. Transcontinental Oil Co.'s University 1, elev 2552 ft, top lime 1035 ft, dr lime and dark shale 4814 ft. Trees Oil Co.'s Trees 3, sd 510 ft. World Oil Co.'s University 1-C, elev 2614 ft, sd 760 ft.

PRESIDIO COUNTY—TP Coal & Oil Co.'s Bogel 1, elev 4665 ft, plugging hfw 4365 ft.

REAGAN COUNTY — Big Lake Oil Co.'s University 1-C, dr shale 8359 ft; University 2-C, gauged 190 bbls oil 11 hrs and 7,435,000 ft gas in sand 8232 ft; University 3-C, dr gray lime 8460 ft; University 4-C, flowed 195 bbls oil and 4,526,000 ft gas 8220 ft. Group One Oil Corp. (Conoco's) University 2-B, dr shale 4510 ft; University 3-B, fsh drill stem 2990 ft.

REEVES COUNTY—Hansford et al's Williams 1, sd 380 ft. Slack & Fink's Brooks-Huling 1-A, sr 860 ft. White et al's Hershheusen 1, elev 3244 ft, top salt 2670 ft, sd hfw 3575 ft.

RUNNELS COUNTY—Geo. W. Boyce et al's Lange 1, sd 1415 ft. Gibson & Johnson's Johnson 1, sp and sd.

SCHLEICHER COUNTY—Delmar Oil Co.'s O'Harrow 1, dr 1595 ft. Phillips Pet. Co.'s J. A. Whitten 1, elev 2333 ft, cem cave 5750 ft. Munger-Wilson Oil Co.'s Page 1, dr 1735 ft.

SCURRY COUNTY — J. A. Armand and Camp Springs O&R Co.'s Quinn 1-A, elev 2316 ft, fsh 3805 ft. Byrd & Harmon's Murphy 1, sd 1732 ft. Pender O&G Co.'s Davis 1, sd 4325 ft. E. L. Smith Oil Co. et al's Mooar 1, elev 2519 ft, top salt 750 ft, co 2605 ft. Trans-Continental Oil Co. and Vacuum Oil Co.'s Peckham 1, rig.

TAYLOR COUNTY—Condor Pet. Co.'s K. Stocker 1, rig. J. B. Jameson et al's Webb 1, elev 1905 ft, sd 5273 ft.

TERRELL COUNTY—Big Bend Oil Corp.'s Bassett 1, elev 2396 ft, sd 1285 ft. Transcontinental Oil Co.'s Goode 1, elev 2405 ft, dr 1255 ft.

UPTON COUNTY—TP Coal & Oil Co.'s E. V. Belcher 1, rig.

VAL VERDE COUNTY—Phantom Oil Co.'s Ingram 1, dr 2430 ft. O. O. Owens et al's Mills 1, sd 5550 ft.

WARD COUNTY—Alpine Oil & Dev. Co.'s Dakan 1, elev 2443 ft, top salt 890 ft, testing 1000 ft, oil in hole at 2148-97 ft. E. J. Anderson et al's Townsite 1, elev 2443 ft, top salt 815 ft, running shot with 1000 ft oil in hole at 2155-83 ft. C. C. Dorr et al's Costley 1-A, top Rustler 1625 ft, dr 1690 ft. Grand Falls Oil Co. (Fugler et al's) Townsite 1, elev 2445 ft, top salt 800 ft, making gas and fsh tools 2132 ft. Gulf Prod. Co.'s Hutchings 3, top salt 1035 ft, co 2596 ft; O'Brien 7, elev 2653 ft, top lime 2460 ft, making sulphur water at 3255 ft, dr gray lime 3290 ft. L. C. Harrison Oil Co. and FHE Oil Co.'s Wristen 1, elev 2530 ft, top salt 715 ft, dr 2895 ft. Mid-Continent Pet. Corp.'s Conway 1, elev 2552 ft, top salt 880 ft, set cas 3010 ft. Penn Oil Co. and Atlantic's Bennett 2, elev 2579 ft, top salt 2085 ft, dr 2300 ft; Cooper 1, elev 2609 ft, top salt 2430 ft, showing oil with water 2657-60 ft, dr 2720 ft. Shell Pet. Corp.'s Sloan-Owen 1, top salt 765 ft, swabbing 42 bbls oil daily average, dr 3425 ft. Shipley Oil Corp.'s Monroe 1-A, fsh 385 ft. Sturm & Paine's A. D. Cummings 1, sd 610 ft. Sun Oil Co.'s Sealy 1, elev 2680 ft, coring 1580 ft. Tex-Oil Production Co.'s Redman 1-A, elev 2717 ft, top salt 1290 ft, co after shot in anhydrite at 3240-75 ft, td 3292 ft.

WINKLER COUNTY—M. J. Bashara et al's Fee 2, elev 2885 ft, top salt 1163 ft, top lime 2306 ft, estimated 75 bbls daily, 3043-87 ft. Sun Oil Co.'s Sealy 2, elev 2713 ft, dr hfw 1395 ft.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports; *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

CENTRAL EAST TEXAS

ANDERSON COUNTY—Humble O. & R. Co.'s E. B. Birdwell 1, S. Bowlin sur, elev 490 ft, Pecan Gap 3145-3346 ft, Austin chalk 3577-3832 ft, dr anhydrite 4260-95 ft; W. Johnson 1, Jas. Hall sur, lcn. Magnolia Pet. Co.'s Ed. F. Williams 2, Wm. Bledsoe sur, set 15½ cas 89 ft. W. H. Roeser, Inc. & Roeser-Pendleton, Inc.'s, W. L. Moody 1, Jas. Welch sur, elev 349 ft, top Midway 1225 ft, top Pecan Gap 2953 ft, coring chalk 3100 ft. Sun Oil Co.'s Bower-Maier 1, E. G. Meyers League, lcn.

DELTA COUNTY — Gaither Pet. Co.'s Smith 1, J. B. Anderson sur, sd 1310 ft.

ELLIS COUNTY—G. C. Foster & S. C. Richardson's Moise-Cerf 1, spd and sd.

FANNIN COUNTY—Ed. V. Parsons-Peck et al's H. E. Morgan 1, J. E. English sur, dk.

FREESTONE COUNTY — Haley-Young et al's Knight 1, David Bullock sur, pb from 4718 to 4695 ft. O. W. Killam & Phillips'

...WIRE ROPE EXPERIENCE...

E. H. Rider, driller and Loyal Turner, tooldresser, at Sinclair Oil & Gas Co., Cudjo 2-B, Seminole City Pool.

UNION WIRE ROPE CORP

TRADE MARK

MEN of long experience in the oil fields know how to get the most out of wire lines. Experience on the manufacturing end also contributes to better service.

The men who design UNION Wire Lines for the oil industry know oil country conditions from practical experience. These lines give splendid service because they are made to meet oil field requirements.

UNION WIRE ROPE CORPORATION

3 North Madison Ave., Tulsa, Okla.

Oil Country Sales and Export Offices
338 Kennedy Bldg., Tulsa

Branch Office and Warehouse
Portland, Oregon

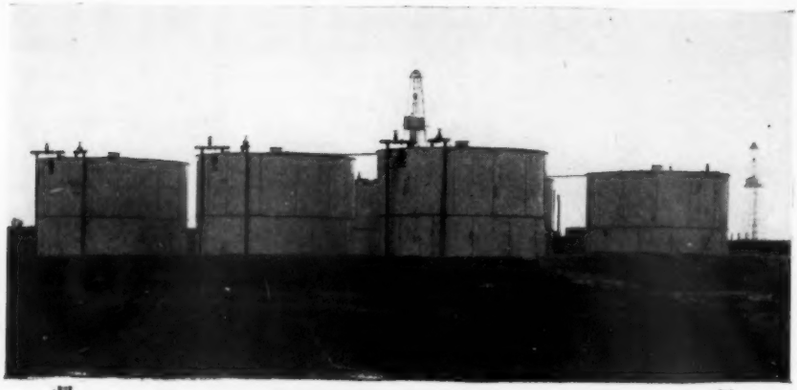
Factory: 21st and Manchester, Kansas City

JARECKI MANUFACTURING COMPANY

Mid-Continent and Eastern Oil Fields Distributors—Stocks at All Stores

Lubricate your wire rope—it increases rope service.

UNION WIRE LINES



Six 1,000-bbl. Maloneys on I. T. I. O. Co., Fortson lease, Oklahoma City. Erected by Maloney Sales Corp.

These Tanks Will *Increase Your Income*

MALONEY Vapor-Pressure Tanks on your lease will increase your income by preventing the escape of valuable vapors. By reducing evaporation losses to the minimum, these tanks will preserve the well gravity and volume of your oil.

Our Vapor Pressure Tanks are constructed in accordance with the most advanced principles of economy and conservation in oil storage. It is not mere theory but proven fact that these tanks will increase the operator's income enough to quickly pay for themselves.

Install MALONEYS and turn present daily losses into money.

"Alone in Quality"

MALONEY TANK MFG. COMPANY

Tulsa, Oklahoma, U. S. A.

Distributers at All Principal Petroleum Points

Maloney A. P. I. Bolted steel Tanks conform to A. P. I. dimensional standards, and carry the official A. P. I. monogram.

MADE OF KEYSTONE AMERICAN

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

MADE OF KEYSTONE AMERICAN

MALONEY

ALONE!

R. M. Edwards 1, A. Sanchez sur, rotary rig. C. F. Lytle et al's E. H. Henderson 1, D. Avant sur, sd 1755 ft. Penn Oil Co.'s B. M. Burgher 1, C. Chamar sur, rig.

HENDERSON COUNTY—E. L. Chapman et al's Cade Bros. 1, Simon Weiss sur, co 1800 ft. Cranfill-Reynolds Co.'s J. W. Broome 1, Samuels Chairs sur, lcn.

LAMAR COUNTY — Bert L. Laubenheim et al's S. D. Johnson 1, Wm. Driggers sur, elev 667 ft, top chalk 1310 ft, fsh in blue sandy-shale 3100 ft.

LIMESTONE COUNTY — Frank Maley & Arthur Heemann's D. Wilkes 1, John Breeding sur, sd 690 ft.

RUSK COUNTY—Magnolia's Duran-Wylie 1, Aquilla Norris sur, rotary rig.

SMITH COUNTY—R. H. Davis et al's J. H. Starnes 1, J. W. Allen sur, sd 869 ft. Deep Rock Oil Co. et al's J. H. Bowdoin 1, M. V. Lout sur, sd 110 ft. East Texas Pet. Corp.'s Kadane 1, John McFadden sur, elev 465 ft, sd 1575 ft. O. M. Rector et al's M. E. Dozier 1, Mathew Maise sur, lcn.

TITUS COUNTY—Canadian Pet. Co.'s Dr. Walcott 1, D. M. Smith sur, materials.

UPSHUR COUNTY—E. L. Chapman's J. H. Hudspeth 1, J. C. Dearman sur, sd 3906 ft.

VAN ZANDT COUNTY—Central Oil Co. & H. L. Hunt's S. J. West 1, A. C. Walters sur, elev 564 ft, dr 2015 ft. Warren Daniels et al's Fannie Cumby 1, John Wright sur, dk. H. Harper (Dennis Oil Co.) et al's C. W. Morrison sur, rotary dk. W. H. Kerbow et al's J. A. Everitt 1, A. Carlisle sur, elev 410 ft, sd 1875 ft. Manley & Short's B. C. Andrews 1, Margaret Neal sur, dk. B. C. McElmurray et al's J. W. Peel 1, S. T. Meeks sur, dr 1110 ft. Arthur H. Ray & Ward Powell's A. J. Berry 1, Nacogdoches School Lands, spd and sd. T. G. Shaw-Fagg et al's W. F. Huddle 1, L. Richardson sur, elev 545 ft, top Midway 520 ft, dr gumbo 2480 ft. Van Zandt Oil & Dev. Co.'s Sharp-Robinson 1, J. B. Ybarbo sur, dr 940 ft.

VAN ZANDT COUNTY (Van Field)—Central Oil Co.'s R. H. Peters strip 1, Nacogdoches School Lands, lcn. Hart Oil Co.'s O. L. Swain 1, (2.3-ac lse.) John Walling sur, lcn. Pure Oil Co.'s R. C. Crim 1, elev 483 ft, rig; A. F. Magers 1, elev 475 ft, Austin chalk 2567 to 2701 ft, coring shale 2820 ft; R. L. Wells 1, elev 485 ft, Austin chalk 2168 to 2390 ft, cemented cas 2518 ft, coring Woodbine sand pay 2610 ft. Shell Pet. Corp.'s E. L. Fowler 1, elev 511 ft, Austin chalk 2215 to 2390 ft, cem cas 2460 ft, dr plug 2494 ft. Sun Oil Co.'s I. W. Thompson 1, elev 505 ft, dr 1730 ft. The Texas Co.'s R. A. Tunnell 1, elev 490 ft, Austin chalk 2431 to 2615 ft, cem cas 2744 ft, td 2769 ft in Woodbine sand; W. White 1, dr 1420 ft.

WOOD COUNTY—Gulf Prod. Co.'s N. E. Carver 1, Wm. Kern sur, rotary dk.

TEXAS GULF COAST

AUSTIN COUNTY—O'Hara et al's Batla 1, Wm. Smithers Survey, sd 2400 ft. Black Oil Co.'s Lancashire 1, 3 mi s Sealey, sd 1900 ft. McInnery et al's McDay 1, w of Kinney in Jno. Martin Survey, dr 300 ft.

BRAZORIA COUNTY—Thos. Faust et al's Fee 6, 2 mi south Nash dome, sd 3300 ft. Shell's Blakely-Winston 1, 2 mi ne Danbury, dr 3700 ft sandy shale, slight oil show. Mills Bennett's Allen 1, Allen Dome, set cas over oil sand at 4900 ft.

CHAMBERS COUNTY — Pure's Mayes 1, Lost Lake, being worked over; Mayes 4, plugging back from 2830 feet; Mayes 6-A, dr sandy shale 3175 ft, oil show; Mayes 9, dr 1500 ft.

FORT BEND COUNTY — Gulf's Brazos Valley Irrig. Co. 1, 3 mi sw Clodine, dr 2435 ft; Moore 20, Moores Field, dr 1850 ft gbo.

HARRIS COUNTY—Humble's Simms-Smith 77, Goose Creek, dr 3123 ft; Warren 7, Hockley, dr 1875 ft shale; Woodburn 2, 2 mi s Genoa, dr 4165 ft shale; Minnetex 2, Mykawa, stdg at 1177 ft; Siadous 1, coring sandy shale at 4450 ft. Watts Drlg. Co.'s Hubert 1, Mykawa, dr 4715 ft sandy shale, oil show reported. Higgins O. & F. Co.'s Siadous 1, dr 4675 ft shale. Cranfill-Reynolds Co.'s Brown 1, 5 mi nw Goose Creek, dr 5025 ft sticky shale. Mrs. J. C. Baldwin's Kitzman 1, 2 mi n Cypress, sd 4055 ft. Buffalo Oil Co.'s Beall 1, 2 mi nw Eureka, dr 2875 ft, gbo.

JEFFERSON COUNTY — Westbury Oil Co.'s West 1, S. Choate Sur., dr 1425 ft gbo. Gulf's Bordages 8, Fannett, stdg 5600 ft; G.

HARD-WORK WAGONS FOR HARD-WORK JOBS

Martin wagons and trailers are built for hard work—built to come through with any load. They are constructed of selected, well-seasoned hardwood, reinforced with steel. Hard work wagons for hard work jobs.

Roads make no difference to a Martin. Let them be good, bad or indifferent. No matter how heavy a load may be, no matter in what condition the road, a Martin never fails.

Martins are in use all over the world, wherever there is heavy hauling to be done. And all over the world you'll hear the same thing said: "A Martin does its job." It's performance that counts.

CARRY GREATER LOADS WITH LESS POWER

Our patent adjustment on tongue and coupling keeps the wheels in line so that they track at all times. This, with a Martin's easy turning qualities, enables you to carry greater loads with less power.

IN SOUTH AMERICA

Martin wagons have been used for years throughout South America, hauling mahogany logs in dense tropical forests. They have been tried and tested under the most adverse climatic conditions. You can depend on a Martin. They always do their job.

"MARTINS HAUL ANYTHING"

MARTIN WAGON CO.

LUFKIN, TEXAS

CONTINENTAL NATIONAL BANK

—a thoughtfully managed bank

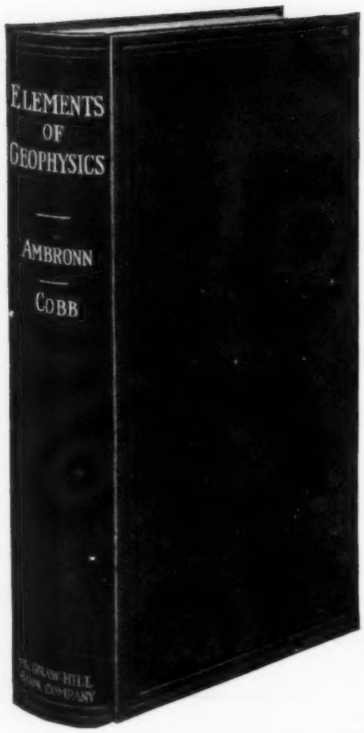
Fort Worth { Strategically located for the transaction of business in all of the oil fields of the Southwest.

Continental National Bank { The bank that you hear frequently referred to as "The Oil Bank in Fort Worth."

Soliciting the Accounts of Individuals, Firms and Corporations of Recognized Standing in the Oil Industry

Geophysical Exploration

for the discovery of minerals, oil and gas



An authoritative discussion of geophysical methods of exploration in mining and hydraulics, in the solution of water supply problems and as an auxiliary to geologic research. The book summarizes the scientific background of geophysics and describes exact methods of geophysical procedure.

Elements of Geophysics

By RICHARD AMBRONN

Gottinger

Translated by M. C. Cobb, M.A., Ph.D.

This is the first treatment in English of a subject of real and rapidly growing importance to the practical geologist, the petroleum geologist and the mining engineer.

The book presents a broad survey of this new field of investigation, reviewing, developments of the various divisions of geophysical application summarizing the results which have been accomplished. At the same time it outlines all established geophysical methods in clear, terse, practical fashion.

CONTENTS

I. The Development and Present Position and Geophysical Methods Applied to Prospecting.

II. The Influence of the Subsurface Formations on the Gravitational Field at the Surface of the Earth.

III. Magnetic Methods of Investigation.

IV. The Use of Radioactive and Atmospheric-electric Measurements for Geophysical Prospecting.

V. Energy Currents.

VI. Electrical Methods of Prospecting.

VII. The Investigation of the Structure of the Subsoil by Means of Elastic (Seismic) Waves.

VIII. The Distribution of Temperature in the Earth's Interior and the Use of Temperature Measurements in Applied Geophysics.

372 pages, 6x9, 84 illustrations, $5.00

GULF PUBLISHING CO., 3301 Buffalo Drive, Houston, Texas

W. Junker 1-A, dr 4650 ft. The Texas Co.-Houston Oil Co.'s Fitzhugh 1, Big Hill, dr 5700 ft shale. The Texas Co.'s Pipkin 2, Big Hill, fsh 6000 ft. Rosedale Oil Co.'s Walker 1, sd 1650 ft.

LIBERTY COUNTY — Harrison Oil Co.'s Jamison 1, N. Dayton, dr 2250 ft. Jno. Deering's Pruitt 6, N. Dayton, sd 1100 ft. The Texas Co.-Paraffine Oil Co.'s Fee 1, N. Dayton, ru. Harvey Smith's Simmons & Brown 1, N. Dayton, ru. Gulf's Weiser 1, Hankamer, fsh 5650 ft; Boyt 3, r 4100 ft. Cranfill-Reynolds Co.'s Esperson 4-A, tested fresh water at 2450 ft; Esperson 5, dr 2150 ft shale; Esperson 6, dr 750 ft sand; Davis 2, dk. Yount-Lee Oil Co.'s Moores Bluff Corp. 2, Esperson dome, dr 5700 ft shale.

MATAGORDA COUNTY—Cockburn et al's Hawkins 1, Shepherds Mott, dr 1600 ft.

ORANGE COUNTY — Veteran Oil Co.'s Read 1, 2 mi se Orange field, dr 4313 ft sandy shale. The Texas Co.'s Polk 2, Port Neches, dr 2075 ft gbo. Gulf's H. J. Starks 1, Port Neches, dr 5790 ft.

WALLER COUNTY — Kirby Petroleum Company's Jim Davis 1, San Felipe, spudded. W. P. Morris' Chapman 1, 6 mi n Hempstead, dr 1850 ft shale.

WASHINGTON COUNTY — Anderson et al's Hughes 1, 3 mi n Chapel Hill, dr lime 2000 ft.

WHARTON COUNTY—Houston Gulf Gas Co.'s Fields 1, Boling, dr 3600 ft.

SOUTH LOUISIANA

ACADIA PARISH — Yount-Lee Oil Co.'s Houssiere Latrielle 8, Evangeline, dr 250 ft; Crowley O. & M. Co. 5, dr 4450 ft; Simms Fee 1, dr 6875 ft shale. The Texas Co.'s Rayne Hrs. 5, Evangeline, dr 6350 ft.

ASCENSION PARISH—Gulf's United Lds. Co. 17, Sorrento, dr 2100 ft gbo. Triumph Oil Corp.'s Lacey 2, 3 mi se Sorrento, dr sticky shale 4075 ft.

ASSUMPTION PARISH — Gulf's Armalise Planting Co. 1, Napoleonville, dr 1650 ft sandy shale.

CALCASIEU PARISH—J. O. Davis' Ind. Lbr. Co. 1, Starks, fsh at 3745 ft; Lutcher-Moore 19, Starks, dr 900 ft. Tex. Gulf Sulphur Co.'s Lutcher-Moore 8, Starks, dr cap rock 1275 ft; 9, dr cap rock, 1450 ft; 10 and 11, lcns.

CAMERON PARISH — Pure's Yount-Lee 7, Sweet Lake, sd 6381 ft; 8, dr 4450 ft; 9, dr 3200 ft. Shell's A. Marceaux 1, Mallard Bay, dr 6600 ft lime and shale. Yount-Lee Oil Co.'s W. H. Stark 1, Johnson Bayou, abn 7657 ft hard sand. Vacuum's Cameron Meadows Ld. Co. 1, e Johnson Bayou, moving in.

IBERIA PARISH—The Texas Co.'s Vermilion Bay 4-A, dr 5300 ft shale.

IBERVILLE PARISH—Shell's Wilbert 4, White Castle, ru. Standard's Schwing 3, Bayou Blue, set cas to test showing at 2120 ft; Wilbert 5, dk. Standard's Cyrus Case 1, Bayou des Glaise, ru.

JEFFERSON DAVIS PARISH—Pure's Day 1, 1½ mi sw Welsh, dr 1180 ft gbo.

LA FOURCHE PARISH—Gulf's City of New Orleans 1, Marchand, dr 3325 ft; Stark 25, Thibodaux, fsh 3300 ft.

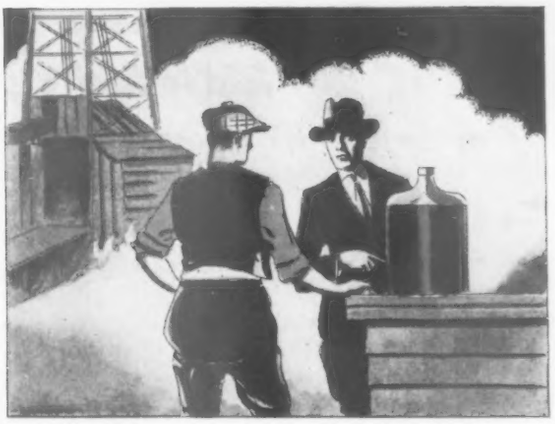
PLAQUEMINES PARISH — The Texas Garden Island Bay 3, preparing to test at 2000 ft. Humble's Cockrell-Moran 1, T 20s, R 26e, dr 1465 ft; Lake Washington 1, 20s-26e, dr 4250 ft.

ST. LANDRY PARISH — Elbof Explorations' Valmont Ledoux 1, Eunice, dr 4350 ft. The Texas Co.'s Botany Bay 3, Port Barre, completed for 1600 bbls at 3436 ft; 4, dr 1100 ft. Gulf's Ovide Lahaye 1, Port Barre, dr 865 ft. Hebert-Baker's Fisher 1, Sec. 10-3s-4e, dr 3510 ft shale.

ST. MARTIN PARISH—The Texas Co.'s St. Martin 1, Hager dome, dr 5950 ft; St. Martin 2, dr 4711 ft hard sand; Iberville Ld. Co. 1, Hager dome, dr 5250 ft water sand. Yount-Lee Oil Co.'s Hebert 1, Anse La Butte, dr 3500 ft gbo.

ST. MARY PARISH—La. Ld. & Ex. Co.'s L. L. Clarke 2, Glenwild, dk. Empire's and Vacuum's Oscar Zenor 1, 2 mi n Patterson, ru. Pure's Wax Lake State 1, dredging canal to location.

TERREBONNE PARISH—The Texas Co.'s Four Isle Bayou 4, lcn; Lake Pelto B-2,



IF you encounter cut oil that seems to be different from any other, bear in mind that the manufacturers of Tret-O-litE have spent more than thirteen years *successfully* treating an almost infinite variety of petroleum emulsions. At your request, a Tret-O-litE representative will bring this vast experience to your lease.

PROCESS PATENTED
APRIL 24 1923
Use our experience without cost to you
WM. S. BARNICKEL & COMPANY
ST. LOUIS, MO.
Offices and Plant: Webster Groves, St. Louis County, Mo.

Tret-O-litE

Reg. U. S. Pat. Off.

capped piling; Lake Pelto 3-B, dr 3250 ft gbo; Bay Junop 1, dr 5047 ft rock; Bay St. Elaine 4, bldg foundation; Lake Barre State 3, ru; Caillou Island 2, completed Jan. 24 as discovery well of dome, flowing 1100 bbls daily of 28 gravity oil at 3240 ft; Dog Lake Bayou 2-B, dr 5160 ft water sand.

MOUNTAIN STATES

COLORADO

ADAMS—N. M. Slatt's Hill 1, se¼ 27-35-64w, sd 1004 ft.

ARAPAHOE—McDeb Drilling Co.'s Fitzsimmons 1, 7-40-66, swedging at 5090 ft.

ARCHULETA — Standard of Colo., Inc.'s Fitzhugh 1, sw 34-33n-1e, ready to spud.

BENT—Continental's Pipe Springs 1, se 27-27-49, dr 5500 ft.

BOULDER—Reliance Oil Co.'s Erickson 1, nw 33-2n-70w, dr 330 ft.

DOLORES—Transcontinental's Glade 1, nw 30-41n-16w, dr 5800 ft.

ELBERT—Belmont Oil Co.'s Maher 1, sw 4-6s-59w, set 6⅝-inch casing at 3720 ft and installing standard equipment.

FREMONT—Westerville Oil Co.'s State 1, nw 16-18s-69w, dr 1175 ft. Continental's Steinmier 1, se 35-18s-70w, rigging up. Standard of Colorado's Tiger 1, nw 26-19s-96w, sd at 1655 ft.

JACKSON—Midwest's Rich 21X, nw 9-6n-80w, sd for winter at 3381 ft. P. & R.'s Hendershot 1, ne 2-6n-81w, sd for winter at 3610 ft.

JEFFERSON — Ruby Hill O. & G. Co.'s Braden 1, se 24-4s-69w, ur to 3678 ft.

HUERFANO — Parker Club and Kinney-Coastal's Fee 1, se 4-28s-68w, prep to rerun 5-3/16-inch casing at 3924 ft.

LAS ANIMAS—Trinidad Dev. Co.'s Flonts 1, sw 23-32-63, dr 2700 ft. Helium Co.'s Hall 1, sw 19-27s-59w, sd 935 ft.

LARIMER—Standard of Colorado's Hertha 1, nw 21-4n-69, has 1,500,000 cu ft gas at 2180 ft. Mosher et al's Reed 1, nw 28-4n-69w, rep rig 2960 ft. Barrows et al's Barrows 1, sd 2310 ft. Continental's Scott 5, nw 6-19n-68w, dr 510 ft.

LA PLATA—Royal P. & R.'s Red Mesa 1, ne 27-33n-12w, prep to resume 360 ft. Detroit Oil Assn.'s Olbert 1, sw 9-35n-12w, fsg tools 1995 ft.

LINCOLN—Kelly Oil Co.'s State 1, ne 36-14n-57w, sd 2954 ft.

MESA—Argo Oil Co.'s Hoel 1, ne 23-8s-104w, ur to lower 8¼-inch to 2712 ft.

MOFFATT—McLaughlin et al's Williams 1, 2-3-92, sd 4385 ft. Vermillion O. & G. Synd., 1, se 23-9n-100w, sd 642 ft. Texas Production Co.'s Berlin 1, ne 18-12n-100w, sd for winter at 2347 ft. Midwest's Hanawalt 1, se 4-6n-92w, cem 15½-inch at 810 ft. F. McCormick's Sales 1-A, se 28-4n-92w, sd 3190 ft.

PUEBLO—Beulah Dome Co.'s Hedland 1, sw 7-23-67w, sd 932 ft.

RIO BLANCO—Texas Production's Potter 1, sw 30-2n-69w, dr 5665 ft. White Eagle's Fordson 1-A, sw 9-2s-96w, udr to bottom at 2905 ft.

ROUTT—Gillespie et al's Omholt 1, se 29-4n-79w, ready to spud. Ruby Hill O. & G. Co.'s nw 17-6n-86w, plugging back from 3127 to 2250 ft.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4s-56w, dr 1100 ft.

WELD—Platte Valley Pet. Corp.'s Patterson 1, se 24-6n-61w, dr at 4885 ft with gas showing.

YUMA—Phillips Pet.'s Andrews 1, nw 3-25-42w, dr 4850 ft. Major Pet. Co.'s Black Wolf 1-A, 7-2s-43w, sd at 1535 ft.

UTAH

BOX ELDER—Utah-Pennsylvania Oil Co.'s Penrose 1, nw 3-10n-4w, dr 3360 ft. Lenora Mining & Milling Co.'s Swaboda 1, nw 9-8n-7w, sd 2755 ft.

CARBON—St. Thomas Oil Co., 1, 14s-9e, fsg 2300 ft. Price River Pet. Co.'s Price 1, ne 16-14s-10e, preparing to resume at 3078 ft.

GARFIELD—Utah Oil Co.'s Butler Valley 1, dr 1900 ft.

GRAND—Crescent Oil Syn.'s McCarthy 1, sw 27-21s-19e, set 6¼-inch casing 1945 ft. Utah Southern Oil Co.'s State 1, se 26-21s-23e, rig completed. Cramer et al's Moss 1, sw 9-20s-23e, dr 2025 ft. Cisco Springs Syn.'s Cisco 1, sw 9-20s-23e, sidetracking bit at 1985 ft.

KANE—Midwest Ref. Co.'s Parry 1, se 14-39s-1w, dr 1900 ft. Beaver Valley Oil Co.'s Black Rock 1, ne 20-25s-9w, jarring on pipe at 3500 ft. Beaver Valley's Black Rock 2, se 19-25s-9w, sd 600 ft.

SAN JUAN—Boulder Knoll Oil Co.'s Boulder Knoll 1, nw 17-34s-25e, resumed at 2640 ft. Continental's Boundry Butte 1, se 22-43-22, dr 5570 ft.

UINTAH—Home Oil Co.'s Spahr 1, sw 8-5s-21e, sd 1165 ft. Maud Ellen Oil Co.'s Neal 1, se 28-3s-21e, dr 1750 ft. Western Venture Corp.'s Krumvieda 1, se 6-5s-21e, sd 1515 ft. Diamond Fork Oil Co.'s Diamond 4, nw 16-8e-5e, dr 1648 ft.

WASHINGTON — St. George Oil Co.'s Reynolds 1, nw 30-43s-14w, sd 970 ft. Mid-American Oil Co.'s Bloomington 1, nw 17-43s-15w, sd 1974 ft. Royal Oil Dev. Co.'s Grafton 1, se 34-41s-11w, sd 907 ft. Virgin Dome Oil Co.'s Harrisburg 1, nw 16-42s-14w, reaming 1300 ft. Arrowhead Petroleum Corp.'s Punchbowl 1, ne 1-43s-15w, sd 860 ft.

IDAHO

BANNOCK—Norton Bros. et al's Marsh Valley 2, Lot 5, Sec. 19-105-37e, set 5-3/16-inch at 2590 ft.

BONNEVILLE—California Co.'s Sorenson 1, se 33-3n-41e, abn at 3780 ft.

CLARK—Monida Oil Co.'s Beaver Dome 1, nw 32-14n-36e, sd 800 ft.

POWER—Gem State Pet. Co.'s Arbon Valley 1, nw 2-11s-33e, sd 3800 ft.

TETON—Grand Teton Oil Co.'s Horseshoe 1, se 33-5n-44e, udr at 1700 ft. Teton Valley Land & Leasing Co.'s Bevan 3, se 28-5n-44e, sd 1325 ft.

MONTANA

BIG HORN—Montana Prod. Co.'s Lynde 2, se 21-6s-35e, dr at 3000 ft.

CARBON—Ohio Oil Co.'s N. P. 2, sw 11-7s-21e, dr at 3920 ft. Atlantic Oil Co. 2, 20-7s-24e, sd in Madison at 1840 ft.

CARTER—Carter & Co., 1, nw 11-2n-58e, dr at 2100 ft. Minn. Oil & Dev. Co., 1, sw 7-8n-58w, dr at 1000 ft. Poss Pet. Corp., nw 7-8n-57w, sd for winter at 2505 ft.

CASCADE—Lone State Mont. Oil Co.'s Mc Lean 1, sw 13-21n-3e dr 850 ft. Peigan et al, 36-20n-3w, dr at 1300 ft. Eden Oil Co., 1, sw, 27-18n-4e, sd at 1325 ft. U. S. Pet. Co., Miller 1, se 8-21n-4e, sd at 1435 ft. Rothrock-Reynolds, McIver-Cel 1, 12-20n-2e, sd at 200 ft for pipe.

CHOTEAU — Williston Shelby O&G Co.'s Flack 1, 12-29n-11e, abd. 2760 ft.

CUSTER—Montana Bell Oil Co., 1, ne 28-8n-45e, fsg. for tools at 4654 ft.

DANIELS—Whitetail Oil Synd., 1, nw 10-36n-50e, sd at 1467 ft.

GALLATIN—Calif. Co.'s Ringling 1, se 35-5n-7e, dr 3265 ft.

GARFIELD—Montana Corp. (T. P. Coal & O Co.) State 1, ne, 36-16n-38e, running casing 2255 ft.

GLACIER—Fulton Pet., 1, 22-36-1w, lcn. Kootenai O&G Co., 13-35n-6w, sd at 306 ft. Cosmos et al., Hannah 1, sw 22-36-12w, rig up. Rim Rock Oil Co.'s Brown 1, sw 29-35n-5w, rig up.

HILL—Jones Oil Co., Brown's Coulee 1, 32-34-14, drilling at 1600 ft. A. H. McFarland, Reg. Life Inc., 1, sw 15-30n-13e, sd 1950 ft.

LIBERTY COUNTY—Square Deal Oil Co.'s Federal Land Bank 1, 1-32n-7e, sd. C. H. Thompson's Thompson 1, sw 7-34n-4e, sd at 2250 ft. Northland O&G Co.'s Yurman 1, 35-33n-6e, dr 1030 ft.

MUSSELSHELL — Minnesota - Flatwillow's Ivanroe Dome 1, 7-11n-31e, spudded in sd.

PETROLEUM—Minnesota-Flatwillow, 2, sw 5-12n-25e, dr at 1558 ft. Oregon-Flatwillow Oil Co., 1, 3-13n-26e, sd 200 ft.

PONDERA—Valier-Williams Oil Co.'s Anderson 1, ne 7-29n-4w, dr 2910 ft. Hiland-Van Daele's Kendal 1, ne 36-30n-3w, underreaming casing, td 4215 ft. Miller Bros.'s Bruins 1, nw 17-28n-1w, rig up. Mitchner et al's Rondas 1, sw 9-23n-1w, dr 2100 ft.

ROSEBUD—Prairie O&G Co.'s N. P. 1, se 9-10n-39e, sd at 2310 ft. water flowing. Prairie O&G, 1, 26-10n-39e, fsg casing 2073 ft. Prairie O&G Co., 1, 28-11n-39e, sd at 65 ft.

STILLWATER—J. S. Stewart et al., 1, ne 5-2n-22e, sd at 3515 ft.

SHERIDAN — Cheyenne O&G Co., 1, nw, 15-36n-53e, sd at 1400 ft, waiting for 10-in. casing.

SWEETGRASS—Shoshone Cons. Oil Co.'s N. P. 1, nw, 23-2n-15e, fsg at 5805 ft.

TETON—Andover Oil Co.'s Carlson 1, ne, 5-24n-4w, sd at 200 ft. L. B. O'Neill's State 1, nw, 16-25n-5w, sd 2305 ft. Newman et al's Fitzgerald 1, se, 26-32n-1w, rig up. Rocky Mountain Oil & Gas Co., (Continental Dev. Co.'s) Salmond 1, ne, 4-23n-8w, sd at 852 ft. Mitchner et al's Rondas 1, sw, 9-23n-1w, sd at 1872 ft. with showing of oil. Earl Oil Corp., 1, ne, 22-22n-8w, sd at 660 ft.

TOOLE—Monalta Oil Co.'s Buckley 1, se, 1-37n-4w, dr 2400 ft. Monalta Oil Co.'s Buckley 2, sw, 1-37n-4w, rig. Anaconda Pet Co., 1, ne 19-36n-2w, sd 1635 ft. Mahan et al's Lee 1, 10-13n-1w, sd 2264 ft. International Royalty Holding Co.'s Henry 1, 26-35n-3e, sd 1850 ft. Roxana Drilling Co.'s Toole 1, 22-36-1e, sd, 1700 ft. D. A. McDonald's Farbo 1, 2-37-4w, 3,000,000 ft. gas at 2400 ft. and 75 bbls of oil at 2520 ft. Cosmos Pet. Co.'s Thacker 1, 2-37n-4w, 4,000,000 ft of gas at 2340 ft. and 100 bbls. of oil at 2530 ft. John Thomas et al's Buckley 1, ne, 1-37n-4w, spudding at 150 ft. Black Gold Pet. Co.'s Syrs 1, sw, 30-36-28, building rig.

YELLOWSTONE — Montana Corp., 16-4n-26e, sd 2230 ft.

NEW MEXICO

CHAVES—Warman Oil Trust's Blackdome 1, ne, 27-13s-24e, dr 851 ft. Cactus Prod. Co.'s Sullivan 1, 14-10s-26e, sd 2065 ft.

DeBACA—Matador Oil Co.'s State 1, sw, 6-4n-20e, dr at 2735 ft. Pittsburgh Oil Co.'s State 1, ne, 16-1s-27e, sd 4506 ft.

GUADALUPE — Los Angeles-Hollywood Synd.'s McMullen 1, sw, 24-5n-16e, may change location.

LEA—Texas Production Co.'s State 1B, sw, 1-21s-33e, dr 3700 ft; State 1A, se, 2-21s-33e, completed at 1300-bbl well at 3771 ft; State 2A, sw, 2-21s-33e, dr 3620 ft. Empire Gas & Fuel Co.'s Closson 1, se, 6-22s-36e, sidetracking tools 3770 ft; State 3B, se 5-21s-35e, dr 4500 ft; Lindley 2, se 14-25s-36e, moving in. Continental, Sholes 2, nw, 13-25s-36e, sd 750 ft; Myers 1, nw 28-22s-36e, sidetracking tools 3765 ft; State 2, 1-21s-33e, dr 1660 ft. Shell Pet. Corp.'s Thorpe 1, se, 19-19s-38e, dr 4015 ft. Walker et al's Terry 2, se 10-19s-38e, spd and sd. Humble O&R Co.'s Lindley 3A, sw, 13-25s-36e, lcn. Humble O&G Co.'s Bower 1, 30-18s-38e, deepening at 3971 ft and showing much oil. Humble O&R Co.'s Koonce 1, ne, 14-25s-36e, ready to spud. Rector Oil Co.'s King 1, ne 26-25s-32e, dr at 4100 ft. Magnolia Pet. Co.'s Lindley 1-X, ne 26-25s-36e, dr in new hole at 1500 ft. Bordage et al's Hughes 1, 27-19s-38e, sd 4012 ft. Morton et al's State 1, nw, 32-11s-38e, dr 3215 ft. Barnsdall Corp., 1, se 28-16s-38e, dr 3470 ft. Cranfills & Reynolds' State 1C, sw 16-23n-36e, ready to spud in. Midwest, Terry 13, sw 10-19s-38w, dr 4070 ft. Amerada Pet. Corp.'s State 1, ne, 1-21s-33e, abd at 3960 ft. Snowden & McSweeney's State 1, sw, 1-21s-33e, dr 3610 ft. Fisher & Lowrie's State 1, nw 11-18s-36e, standardizing at 2100 ft. Harrison et al's State 1, sw, 35-18s-38e, sd 565 ft. Texas Pacific Coal & Oil Co.'s State 3, ne, 21-23s-36e, dr 2025 ft. Penn Oil Co.'s State 1, ne, 21-19s-36e, deepening at 4890 ft.

McKINLEY — J. W. Halsell, Santa Fe 1, 17-18s-9w, sd 3080 ft. San Juan Coal & Oil Co., 1, se, 21-18n-9w, sd 2205 ft. Williams et al's Santa Fe 1, sw, 19-18n-8w, wtg casing at 1900 ft.

NEW MEXICO

EDDY—Danciger et al's Turner 2, sw, 18-17s-31e, testing production at 3555 ft and showing much oil. Van Horn et al., se 18-19s-26e, dr 470 ft. Etz Bros.'s Etz 1, se 13-16s-30e, dr 3700 ft. Levers & Carper, State 1, se, 21-17s-29e, dr 3430 ft. R. D. Compton's State 1, nw, 2-20s-25e, dr 475 ft. Henderson et al's Arnold 1, se, 23-17s-30e, dr 2500 ft. Welch et al's State 1, sw, 27-17s-28e, dr 2440 ft. Flynn-Welch-Yates' State 57, se, 19-19s-28e, dr 1920 ft. Lockhart et al's Beeso n2, ne, 28-17s-30e, ready to spud.

RIO ARRIBA—Berringer et al's Hartman 1, ne, 8-29n-7w, preparing to resume at 825 ft. San Juan Pet. Co.'s Government 1, sw, 14-30n-7w, spudding at 50 ft.

SAN JUAN—Dorothy Oil Co.'s Terwilligan 2, 29-30-9w, sd 1170 ft. Kutz Canon O&G Co.'s

M-S-A *Combination* Hose Mask

The Only Fresh Air Mask Officially Approved by both the United States Bureau of Mines and American Gas Association

Bears U. S. Bureau of Mines Approval No. 1901

Ball Bearing Blower, operated by outside man, furnishes wearer uninterrupted stream of Fresh Air under most vigorous use.

Demonstration on Request

Extensively used for protecting men in Oil Tanks, Tank Cars, Shipholds, Derrick Cellars, etc., or in general where High Concentrations of Gas or Oxygen Deficient Atmospheres are likely to be encountered.

Ask for Bulletin No. 170

Mine Safety Appliances Co.

Braddock, Thomas and Meade Sts., Pittsburgh, Pa.

"Everything for Mine and Industrial Safety"

STALEY, WYNNE & COMPANY

OIL PRODUCERS

OFFICES:

STALEY BUILDING - - - WICHITA FALLS, TEXAS

Day 1, sw, 20-28n-10w, dr 1390 ft. Blackrock Oil Co.'s Blackrock 1, se, 11-26n-13w, wtg on extension permit with td 1550 ft. Greathouse et al's Roderick 1, se, 11-22s-14w, sd 1000 ft. Childers Dr. & Pr. Co.'s Westwater 2, nw, 24-31n-16w, sd 2525 ft. Reserve Oil Co.'s Shaffer 2, ne, 1-21n-14w, ur to 780 ft. Southern Gas Co.'s Kutz Canon 1, 11-28n-11w, dr 3100 ft.

SAN MIGUEL — Pioneer O. & G. Co.'s Thunderbird 1, nw, 14-15n-16e, sd. 2245 ft. Starr Oil Co.'s Adams 1, ne, 25-17n-17e dr 3300 ft. Cibola Pet. Co.'s Crow 1, se, 9-13n-14e, ur to 320 ft. Hershfield Dev. Co.'s Cabra Springs 1, ne, 21-12n-22e, dr 930 ft. Benedict et al's Wilson 2, nw, 25-17n-16e, ready to snd.

SOCORRO — Lockhart & Co.'s Stackhouse 1, 14-3s-6e, dr 1910 ft.

TORRANCE—Williams et al's Staplin 1, ne, 16-8n-10e, dr 1512 ft.

VALENCIA—Rio Puerco Oil Co.'s N. M.-Ariz. Land Co. 2, ne, 13-6n-2w, wtg for pipe 3145 ft. Acme Oil Co.'s N. M.-Ariz Land Co. 1, 26-6-3, dr 4716 ft. Harlan et al's Harlan 1, 5-6n-2e, dr 3182 ft.

WYOMING

ALBANY — Midwest Ref. Co.'s Diamond Anticline 1, rig.

BIG HORN—P. & R. 3, 24-56-98, fsg tools, 4183 ft. Westland Oils Inc., 24-54-95, sd crooked hole 360 ft. Wisconsin Holdings, 4-55-97, sd 665 ft. Cody Pet. Corp., 27-57-96, abd 4144 ft in Madison. Yellowstone Pet Co., 7-57-97, dr below 2400 ft.

CARBON—P. & R. 2-19-88, sd 4160 ft. C. E. Bivens et al's Baggs 1, 35-13-92, dr 1726 ft.

FREMONT—Premier Oil Co., 7-28-93, sd 1221 ft.

HOT SPRINGS—Midwest, 8, 6-44-98, sd for winter at 1052 ft. Ohio Oil Co.'s Smith 1, 9-46-99, dr 3715 ft. Gebo Cons., 1, se, 23-44-95, set 16-in. at 1245 ft. C. F. Robertson et al., se 17-43-92, sd 450 ft.

JOHNSON—United Oil Co., 7-47-82, sd 812 ft.

KAYCEE—R. C. Tarrant, 4-43-82, sd 600 ft. Dome Synd. No. 3, 4-43-82w, sd below 720 ft.

LINCOLN—Midwest Ref. Co., Grey's River 1, 25-37-117, sd for winter at 1731 ft; Waterfall 1, 35-22-115, sd 3510 ft. Moutain Oil Corp., 36-25-115, sd 100 ft.

PARK—P & R Pitchfork 1, 14-48-102, sd 1400 ft. Henderson Prod. Co., 31-58-99, sd 3000 ft. Ohio Oil Co.'s Burlington 1, 21-53-101, dr 4555 ft. Resolute Oil Co., 17-27-101, sd 4280 ft. Cody Pet. Corp.'s Danker 1, sw, 22-57-98, fsg casing at 2697 ft.

SWEETWATER — Mountain Fuel Supply Co.'s Tucker 1, 18-13-99, sd 2900 ft. Mountain Fuel Supply Co.'s Cappers 1, 2-9-104, dr 3914 ft; U. P. 1, 13-19-104, dr 3379 ft.

SUBLETTE—California Co.'s Wyss 1, 12-32-116w, dr 2618 ft.

UINTA—California Co.'s U. P 1, 7-17n-119w, dr 4712 ft.

WASHAKIE — California Exploration Co., 29-48-89, agd 2711 ft.

WESTON — Gose Syndicate, 28-47-65, sd 4004 ft. Wyo Drlg. Synd., 15-44-64, abd 4350 ft.

NORTH LOUISIANA

Completions

Company, Well and Location	Initial Production Bbls.	Depth
BOSSIER PARISH—		
Texas Co., Henry Rose 3, 31-23-11.	150	3165
CADDO PARISH—		
Texas Company, Sentell 3, 9-19-14..	*	2508
Gulf Ref. Co., Oden 5, 18-19-14.....	*	2430
Gulf Ref. Co., Oden 6, 18-19-14.....	*	2416

BOSSIER PARISH—La. O. R. Corp.'s Matlock 1, 26-23-12, mov in rig. National Gas Prod. Co.'s U. S. 1, 31-23-11, hole has 1800 ft fluid most oil wosr 4½ in cas 3129 ft td 3194 ft. Bahan & Bahan et al's Pleasant 1, 25-23-12, dk. May 1, 26-23-12, rig up. Deleware La. Dev. Co.'s Bolinger 3, 38-23-11, old well arr deepen. Greenwood Prod. Co.'s Bolinger 1, 36-23-12, rig up to deepen. Lide et al's Farrington 1, 23-23-12, dk. pat. Love et al's Allen 1, 30-23-12, dk. Woodley et al's Roberson 1, 22-23-12, rig up. L. & A. 2, 13-23-12, ow arr deepen. C. L. West et al's Sentell-Dickson 1, 3-20-13, sd 1110 ft. Lanier et al's Le Rosen 1, 26-21-14, dk pat Nell & Lanier's Biedenharn 1, 23-21-14, wosr 998 ft. Walker et al's Antrim 1, 28-21-13, sd 3184 ft. Jacob Laskin, Tr's Pardee 2, 3-22-11, wosr td 2655 ft. Morgan et al's Weatherbee 2, 28-19-11, dr 2738 ft. Sam Gold et al's McFarlin 1, 7-19-13, sd 2439 ft. Muslow Oil Co.'s Barnett 1, 25-23-11, ow arr deepen td 3076 ft. Goodman-Johnson's Martin 1, 26-23-12, coring 3161 ft. Muslow Oil Co.'s Marks Meyer 1, 36-23-11, ow arr deepen td 3088 ft. Northwest La. Nat. Gas Co.'s Bolinger 5, 38-23-11, rig up. Muslow Oil Co.'s Kilgore C-1, 31-23-11, set 4½-in cas 3150 ft swabbed down to top liner showing some oil bailing liner td 3167 ft. Magnolia Pet Co.'s Rogers A-1, 21-23-12, set 5¾-in cas 3178 ft swabbed 7 bbls oil daily show sw sd wo td 3217 ft. Texas Co.'s Henry Rose 3, 31-23-11, set 6¾-in cas 3157 ft flowing 150 bbls oil by heads td 3165 ft. La. Pet. Co.'s Peyton 2, 25-23-12, sp dr 50 ft. Peyton 3, 25-23-12 dr 800 ft. Palmer Corp.'s Robinson 1, 26-23-12, wo 4½-in cas sandy shale 3159-75 ft td 3175 ft. Deleware-La. Dev. Co.'s Bolinger 2, 31-23-11, wo 1½-in ds to m thru pipe set 4½-in cas 3129 ft. Texas Co.'s J. W. Peyton 2, 25-23-12, dk. J. W. Peyton 3, 30-23-11, dk. Muslow Oil Co.'s Kilgore B-1, 31-23-11, wo 3062 ft. Texas Co.'s Wilkinson 1, 36-23-12, ow arr deepen.

CADDO PARISH—Texas Co.'s Henderson 1, 16-19-15, dr 930 ft. Sentell 3, 9-19-14, dry abn td 2508 ft. Sam Gold et al's Hunter 3, 17-19-14, wosr td 2457 ft. I. N. Pharris Tr.'s Oden 1, 19-19-14, set 6-5/8in cas 2379 ft td 2409 ft. Standard Oil Co. of La.'s Hunter 3, 17-19-14, set 6-in cas 2360 ft. Gulf Ref. Co.'s Oden 5, 18-19-14, dry abn td 2430 ft. Oden 6, 18-19-14, dry abn td 2416 ft. Old River Oil Corp.'s Byrd 1, 15-19-14, wosr td 2472 ft. Sibley 1, 15-19-14, wosr td 2495 ft. Dixie Oil Co.'s Dickson 1, 10-19-14, cln. R. W. Norton's Hill 1, 33-23-16, sd wo 4496 ft.

CLAIBORNE PARISH — El Dorado Chief Oil Co.'s Simmons 1, 27-20-7w, sd in shale and bldrs 2240 ft. Triangle Drilling Co.'s Kilpatrick 1, 7-19-5w, set 9-in cas 4266 ft td 4275 ft.

CONCORDIA PARISH — Joe Marr et al's Maxwell 1, 35-3-8e, set 12½-in cas 130 ft sd high water.

DESOTO PARISH — Benson O&G Co.'s Harris 1, 6-10-13, set 6-5/8-in cas 3070 ft dr sandy shale 3373 ft. R. O. Roy's Farmer E-1, 5-13-13, sd 1825 ft; B-1, 8-13-13, dk. Benedum & Trees' Johnson 1, 7-11-13, dr 1278 ft.

FRANKLIN PARISH—Evansville Inv. Co.'s Welch 1, 2-14-8e, rig up. Franklin O&G Co.'s O'Brien 1, 7-15-9e, set 12½-in cas 208 ft. Davis et al's Moore 1, 12-11-6e, sd 1430 ft.

MOREHOUSE PARISH — P. J. White's Chess Wymond 1, 32-19-6e, sd 3025 ft.

NATCHITOCHES PARISH — S. D. McDaniels' Clark-Morse 1, 23-5-6w, sd 2536 ft. Robeline O&G Co.'s Winn 1, 7-8-9w, sd 1560 ft. Nichols & Wilder's Clark 1, 10-10-8w, sd 2110 ft.

OUACHITA PARISH—J. L. Bullock, Tr.'s West Va. 1, 25-18-5e, sd 2700 ft.

RAPIDES PARISH—Ayers Bros.' Wickl pp 1, 9-5n-2w, sd 2530 ft.

RED RIVER PARISH — W. D. Ball's Krumbholz 1, 32-14-10, sd high water 1560 ft. Eylers O&G Co.'s Johnson 1, 17-12-10, set 8-in cas 2580 ft 7 ft sand td 2665 ft (corrected).

RICHLAND PARISH—Richland O&G Co.'s Singletary 1, 20-18-7e, set 9-in cas 970 ft. Austin & McDonald's Millsaps 2, 17-17-6e, sd 2697 ft. Millsaps 3, 16-17-6e, sd 2477 ft. Millsaps 4, 16-17-6e, lcn. Millsaps 5, 8-17-6e, dk. Hunt 1, 13-17-5e, dk. Industrial Gas Co.'s Hodge 1, 7-16-7e, fsh ds 2874 ft. A. T. Davidson 1, 6-16-7e, sdwo 2762 ft. Ruston Drilling Co.'s Hodge 1, 7-16-7e, sd wo 2600 ft. Triangle Drilling Co. & Woodley Pet. Co.'s Cumpton 1, 16-17-7e, dr 2854 ft. Woodley Pet Co.'s Buie 1, 32-18-7e, dr gray shale 3021 ft. S. R. Humble's Bunion-Sartor 1, 20-17-6e, heading well td 2481 ft. Palmer Corp.'s Miles 2, 12-17-6e, set 6-in cas 2316 ft wo. W. C. Feazel's Landrum 1, 6-16-7e, dk. Shreveport Contractors' Buie 1, 17-15-7e, sd in black shale 2527 ft.

SABINE PARISH—Sabine O&G Co.'s Anderson 1, 19-8-12, sd 2300 ft. R. L. Gay, Tr.'s Bowman-Hicks A-2, 3-7-12, dr 1250 ft. Bowman-Hicks 6, 14-7-14, drilling in set 8¼-in cas 2029 ft. Sabine Lbr. Co., 3, 13-7-14, set 8¼-in cas 2029 ft dr in. A. H. Tarver et al's Long-Bell Lbr. Co., 2, 18-8-13, arr deepen td 1967 ft. State Bank 1, 27-8-12, dr 350 ft. Olsan Bros.' Hooker 1, 27-8-12, topped chalk 2357 ft set 6-5/8-in cas 2333 ft shot 11 qts explosive 2465 ft 50 ft oil rose in hole in 24 hrs td 2625 ft. Ohio Oil Co.'s Bowman-Hicks 1, 35-8-12, elev 307 ft topped chalk 2392 ft set 6-5/8-in cas 2385 ft hfo after bailing and swabbing for week td 2405 ft. Bowman-Hicks 2, 33-8-12, set 6-5/8-in cas 2360 ft td 2384 ft. Bridges-Clark Oil Co.'s Gay 1, 3-9-12 coring 1580 ft. J. C. Tippett's Hughes 1, 36-8-12, dr 350 ft. Lion O. R. Co.'s Sabine Lbr. Co., 1, 31-8-12, set 10-in cas 100 ft. (formerly Stovall Drilling Co.'s lcn). Ruston Drilling Co.'s Holliday 1, 35-8-12, cmtd cavity 850 ft. Bowman-Hicks 1, 4-7-12, rig up. Warner-Quinlan Co.'s Peterson 1, 26-8-13, setting 12¼-in cas 110 ft. Usinovitch et al's Lefkovitz 1, 33-8-12, lcn. Le Grande et al's Haley 1, 6-7-12, set 6-5/8-in cas 2130 ft sdwo. D. H. Reddick, Tr.'s Scretchfield 1, 18-9-12,, sd for fuel 2150 ft. W. D. Ball's Long-Bell Lbr. Co., 1, 35-8-14, lcn. Haynes Bros.' Meyer 1, 28-8-12, topped chalk rock 2288 ft sr to set 6-5/8-in cas 2280 ft td 2316 ft. Amerada Pet. Corp.'s Bowman-Hicks 1, 33-8-12, ds recovered 2044 ft dr 2250 ft. Warner-Quinlan Co.'s Sabine Lbr. Co., 1, 34-8-12, dr 700 ft. Sabine Lbr. Co., 2, 34-8-12, lcn. Lide et al's Sabine Lbr. Co., 1, 31-8-12, rig up. J. M. Bridges' McWilliams 1, 30-10-11, lcn.

Willis et al's Curry 1, 39-11-12e, set 10-in cas 80 ft dr 410 ft.

UNION PARISH—Fred Stovall's Stovall 1, 32-23-4e, rig up.

WEBSTER PARISH—F. M. Fuller's Mcnzingo 1, 27-18-8e, sd 600 ft. Pat Hudson's Gardner 1, 1-22-11, dk B. L. Slack 1, 36-23-11, rig up. E. W. Bateman's Womble 1, 1-22-11, 1200 ft fluid in hole some water td 2712 ft. Womble 2, 1-22-11, dr 2650 ft. Magnolia Pet. Co.'s McCook & Hibbler 1, 22-21-10, tested dry at 7002 ft arr abn broken sand 6973-7002 ft td 7006 ft. Denman 2, 1-22-11, sp dr 80 ft. Baker 1, 35-23-11, coring sandy shale 3200 ft. Sales & Walker's Bolinger 4, 30-23-11, dr 800 ft. Sarepta Oil Co.'s Gardner 1, 1-22-11, 600 ft fluid in hole td 2719 ft. Paul C. Warren's Martin 1, 20-20-9, sd 1934 ft. Donohoe Oil Co.'s Rosebeiry 1, 19-23-9, sd 104 ft.

WEST CARROLL PARISH—Palmer Corp.'s Marston A-1, 11-19-10e, dr 1967 ft. H. L. Hunt's Brown 1, 4-21-11e, rig up.

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
COLUMBIA COUNTY—		
Louisiana O. R. Corp., W. M. Green 1, 22-15-19	15	2240
UNION COUNTY—		
Marine Oil Co., Thompson A-3, 10-18-13	500	3535
Al-Cal Oil Corp., Haney 1, 1-17-16..	*	1990

ASHLEY COUNTY—Ark. Fuel Oil Co.'s Crossett Lbr. Co. 1, 1-19-7, dr lime and shale 3028 ft.

COLUMBIA COUNTY — L. E. Karper's Franks 1, 25-19-22, sd 2831 ft. Louisiana O. R. Corp.'s W. M. Green 1, 22-15-19, pumping 16 bbls oil, 50 bbls salt water at 2240 ft, td 2490 ft. Williams et al's Fullenwider 1, 12-17-22, rig up.

CLEVELAND COUNTY—Craver & Walker's Fee 1, 33-11-9w, rigging up wo.

CLEBURNE COUNTY—Cosden Oil Co.'s Donithan Lbr. Co. 1, 19-9-10, dr 785 ft.

DREW COUNTY—McClintock & Goedeke's Ogle 1, 33-13-5, sd in new hole 1810 ft, td old hole 2530 ft.

FAULKNER COUNTY—Gold Creek O. & G. Co.'s Stermer 1, 17-4-13, ta 3872 ft; Stermer 2, 17-4-13, sp, no report.

FRANKLIN COUNTY — Ozark Nat. Gos Corp.'s McElroy 1, 15-8-27, arr plug back, td 3100 ft.

GARLAND COUNTY—H. H. Given's Garrett 1, 1-13-19w, dr sand 3394 ft.

GRANT COUNTY — Jones Watkins' Meek 1, 5-4-11, ta 1400 ft.

JOHNSON COUNTY — Ark.-La. Pipe Line Co.'s Patterson 1, 14-10-24, dr hard sand 1440 ft. Blackwell O. & G. Co.'s Wyver 1, 21-8-25, sd 5360 ft.

LAWRENCE COUNTY — Marguerite Dev. Co.'s Broadway 1, 31-17-1, lcn.

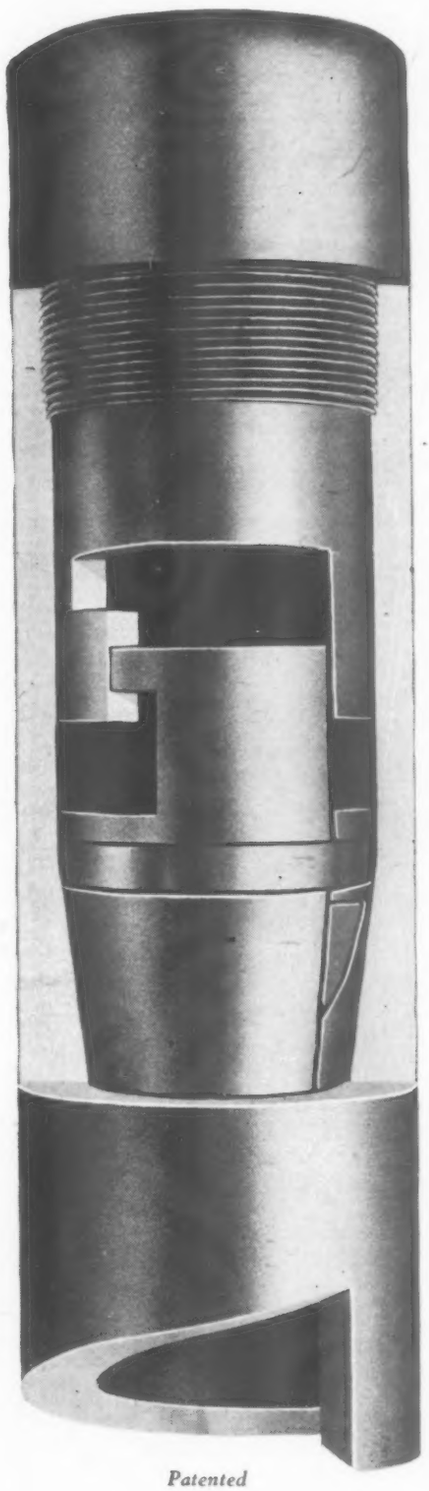
LITTLE RIVER COUNTY — Grote et al's Allen 1, 31-12-31, ta 2941 ft. C. F. McDonald's Black 1, 12-13-29, sd 1965 ft. Buck Oil Co.'s Taafe 1, 23-21-32, dr 2105 ft.

NEVADA COUNTY — Ray Davis et al's Henry et al 1, 10-12-20, dk.

OUACHITA COUNTY—Copenhaver et al's

The VICKERS

RELEASING and CIRCULATING OVERSHOT



Patented

– never fails to pack off!
– never fails to release!

THE VICKERS Releasing and Circulating Overshot is now in use in many parts of the world. Its merit is proven. Users everywhere say that it has distinct advantages and improvements over other overshots on the market.

The triangular metallic packing shown at the lower center of the slips effects the pack-off. No fluid can escape through this packing. It forces the fluid down through the fish, with any amount of pressure desired.

The method of release can readily be grasped by any experienced well digger. It is safe, simple, and effective. It provides a sure way to "let go" if the fish cannot be pulled. The release never fails to function. LITERATURE AND PRICES ON REQUEST.

MANUFACTURED AND SOLD BY

Vickers Machine Works

Smackover, Ark.

Warnick 1, 2-15-17, ta 2190 ft. Artex Oil Co.'s Smith 1, 31-15-17, sd, thawing out water line, td 3014 ft. A. P. Smith et al's Reynolds 1, 21-14-17, sd 1200 ft. La. O. R. Corp.'s Tucker 1, 15-15-19, fsh cas 2239 ft. Magnolia Pet. Co.'s Grayson 1, 21-15-19, set 15½-inch cas 241 ft.

PIKE COUNTY—Theo. Davis, Tr.'s Ruth Wilson 1, 25-5s-26w, sd 718 ft.

POPE COUNTY—Cosden Oil Co.'s Mo. Pac. R. R. 1, 13-9-19w, dr 2275 ft. Ark. La. Pipe Line Co.'s Harns 1, 22-9-21, lcn.

PRAIRIE COUNTY — Transcontinental Oil Co.'s Novack 1, 36-2-6, set 8¼-inch cas 2058 ft, sd 2435 ft.

SEBASTIAN COUNTY—Lavaca O. & G. Co.'s Cason 3, 21-8-30, dk; J. O. Ingram 7, 22-8-30, dr 2700 ft. A. G. Williams, Jr.'s Patterson 1, 27-8-30, lcn.

ST. FRANCIS COUNTY—Brownlee Drilling Co.'s Whitted 1, 28-4-1, sd 300 ft.

UNION COUNTY — Frank Staples' Ainsworth 1, 8-19-16, sd 2090 ft. Lion O. R. Co.'s McDuffie 1, 32-19-16, dry in sand slate, arr abn, td 4365 ft. O. W. Estes' Telford 1, 35-17-15, bailed, showed 200 ft oil in hole, sd 2330 ft. Felsenthal 1, 2-18-15, sd wo 2191 ft. Marine Oil Co.'s Thompson A-3, 10-18-13, completed flowing 500 bbls 20.5 gravity oil by heads, dropped to 300 bbls last 24 hr gauge, 8⅝-inch cas set 3522 ft, td 3535 ft. E. G. Bradham's Craig 1, 6-18-15, set 6-inch cas 2080 ft, dr 2115 ft. H. L. Hunt's Pratt 6, 7-18-15, bailed 8¼-inch cas 2150 ft, dr 2160 ft. Malloy & Co.'s Robertson 3, 6-18-15, lcn. Wisinger & Ball's Lacey 1, 6-18-15, set 6⅝-inch cas 2131 ft. Al-Cal Oil Corp.'s Haney 1, 1-17-16, dry, abn, td 1990 ft. Wisinger & Ball's Rodgers 1, 31-17-15, set 12½-inch cas 175 ft. Malloy & Co.'s Goodwin 4, 36-17-16, lcn. Lion O. R. Co.'s Ballard 1, 10-18-13, lcn.

WASHINGTON COUNTY — Lincoln Lease Holding Co.'s Townsite 1, 30-15-32, sd 1500 ft. C. H. Willoughby's Jones 1, 34-16-30, trying kill water flow 2150 ft. O'Hara & Shetterley's Boyd 1, 12-16-32, sd 150 ft.

WHITE COUNTY—Letona Synd.'s Letona 1, 35-9-8, set 5-3/16-inch cas, sd 3500 ft.

VAN BUREN COUNTY — J. S. Martin's Scanland 1, 5-9-13, sd 50 ft.

MISSISSIPPI

ALCORN COUNTY—Alcorn Pet. Co.'s Matthews 1, 14-2-7, sr at 2440 ft to re-land 6-inch cas at 2480 ft, td 2735 ft.

CHICKASAW COUNTY—Hightower & Golson's Fleming 1, driving 8¼ thru quicksand, td 1252 ft.

CLAIBORNE COUNTY—Ben White's Old Hen 1, 26-10-4, sd 2004 ft.

HARRISON COUNTY (Gulfport Dist.)—Dalton Oil Co.'s Lopez 1, 15-7-10w, lcn.

HINDS COUNTY (Jackson Dist.) — Mrs. Ella Rawls Reeder's State Land 1, 25-6-1, co td 2895 ft. Cleve Love et al's Mayes 1, 2-5-1e, set 10-inch cas 730 ft, set 6⅝-inch cas at top of chalk 2460 ft.

LAFAYETTE COUNTY—F. E. West et al's May 1, 22-10-1w, rigged up wo.

LAUDERDALE COUNTY (Meridian Dist.)—Lauderdale O. & G. Co.'s Lackey 1, 2-7-16, set 8¼-inch cas 2795 ft, arr drill plug, td 2816 ft. Meridian Nat. Gas Co.'s Mattie Houser 1, 33-8-18, co td 2629 ft. Boyd Hammond's Craig 1, 2-6-14, dk.

LINCOLN COUNTY (Brookhaven Dist.)—Lincoln O. & G. Co.'s Pat Case 1, 21-8-6, sd 2221 ft.

LEE COUNTY — Lee County Pet. Co.'s Hickman 1, 12-8-6, sd 920 ft.

MONROE COUNTY (Amory Dist.)—Amory Pet. Co.'s Hall 1, 8-13-17, set 8-inch cas 2293 ft, set liner 2333 ft to stop caving in new hole, td old hole 3045 ft. Amory Dev. Co.'s Bourland 1, 2-13-19, bailer recovered resume dr in lime, td 2912 ft. Park Bowser's Cowart 1, 2-12-19, moving in drill pipe preparatory to resuming operations, td 30 ft.

WARREN COUNTY (Vicksburg Dist.) — Henderson et al's Dornbusch 1, 8-18-15, arr run 6⅝-inch cas over stuck drill stem, td 2475 ft.

WEBSTER COUNTY — Cumberland Oil Co.'s Henley 1, 15-21-11, sd 1865 ft.

YALABOUSHA COUNTY (Water Valley Dist.)—J. D. Collette et al's Blackmer 1, 14-11-4w, topped red beds 2316 ft, sd for fuel, still in gravel, td 2427 ft.

YAZOO COUNTY — Amerada Pet. Corp.'s Campbell 1, 24-12-2, sr td 2735 ft.

ALABAMA

Company, Well and Location	Initial Production Bbls.	Depth
LAWRENCE COUNTY—		
Peerson Drilling Co., Jacobs 1, 11-7-7	*	300

HOUSTON COUNTY—J. R. Sealey's Fee 1, 13-1n-27e, changing from cable tools to rotary, td 3100 ft.

LAMAR COUNTY — Briggs & Knapp's Wefel 1, 25-12-14, set 4⅞-inch cas 1658 ft, dr hard lime 1730 ft.

LAWRENCE COUNTY — Peerson Drilling Co.'s Jacobs 1, 11-7-7, dry abn, td 300 ft.

LAUDERDALE COUNTY — P. J. McAlpine's O'Neal Heirs 1, 8-2s-13w, rig up.

MARION COUNTY—P. J. McAlpine's Clark 1, 22-11-14, dk pat.

MORGAN COUNTY—Albany-Decatur O. & G. Co.'s English 1, 6-6-4, fsh for cas 4130 ft.

SUMTER COUNTY—B. W. Bates' Fee 1, 3-18-1w, ur to set 6-inch cas 300 ft.

WASHINGTON COUNTY—Hobson et al's Wilson 1, 27-7-1w, fsh for bailer in limey shale, td 881 ft; Hobson Bros. 1, 9-8-2w, sd 1450 ft. Oscar Brown's U. S. Land & Cotton 1, 26-3-2, arr to abn at 150 ft, skid over for new hole.

TENNESSEE

DECATUR COUNTY—Chester County O. & G. Co.'s Montgomery 1, set 6-inch cas 1045 ft, dr black shale with lime and shale showing oil, td 1600 ft.

NORTH CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
ARLIGHT—		
Standard, Sudden 1, 35-6-26	*	2860
SANTA BARBARA—		
Standard, Santa Barbara County 1, 11-4-28	*	2472
KERN COUNTY—		

BELRIDGE — Elmer Oil Co.'s 1, 2-29-20, pumping 20 bbls, td 3975 ft. J. H. Kennedy's 1, dr 900 ft. Keystone Pet. Co.'s 1, sd 3680 ft. K. C. Wallace's 1, 32-29-21, dr shale 2575 ft.

BUTTONWILLOW—Milham Exploration's Kern 6, 8-28-23, 11¾-in cas cmt 2812 ft, td 4390 ft.

EDISON—F. M. Sayre's 1, 5-30-29, dr shale 2318 ft. Texas' Newman 1, 23-29-28, dr shale 5178 ft.

GOULD HILLS—Casa Mira Oil Co.'s Theta 1, 20-28-20, dr shale 2778 ft.

McKITTRICK—Ohio's M. M. 1, 32-20-22, dr shale 2650 ft. H. L. Whitson's Wisecarver 1, 30-30-20, sr to ru cas, td 4195 ft.

MIDWAY—Shell's Perris 1-A, 15-32-23, coring 8060 ft. Standard's Mascot 1, 26-32-23, dr shale 8600 ft. Texas' Gore 4, 21-31-22, dr shale 3600 ft.

SAN EMIDIO—Union's K. C. L. 2, 5-10-21, dr shale 3900 ft.

SHALE HILLS—Girard Oil Co.'s 1, 28-26-18, new lcn.

TEMBLOR HILLS—Shell's Gonyer 1, 32-32-23, sr 1785 ft.

WEED PATCH—Shell's Porter Day 1, 29-30-29, grading for rig.

SANTA BARBARA COUNTY

ARROYA PARIDA—Shell's Fithian 1, 18-4-25, dr shale 1912 ft.

BUELL—Union's Buell 1, dr shale 3150 ft.

CARPENTERIA—Continental's Kitty Bailard 124-1, rig. George F. Getty's Casper 130-1, 32-4-25, validation work; McDonald 120-1, 32-4-25, validation work.

CASITAS—Standard's Shepard 1, 26-4-25, dr hard sand 507 ft.

CASMALIA—Wildcat Oil & Royalty Co.'s Donovan 1, 20-10-35, dr 4219 ft.

GOLETA—F. G. Anderson's Langman 1, 10-24-28, 8⅝-in cas cmt 4528 ft, td 4672 ft. General Pet.'s Crandall 138-1, dr shale and rock 715 ft; Sands 137-1, dr shale 1030 ft; More 2, dr shale 3525 ft. Standard's Edwards 2, dr shale 2424 ft. U. S. Pet. Corp.'s Permit 142-1, dr 265 ft; Permit 143-1, dr 400 ft.

LOMPOC — Ohio's Hollister 1, 2-6-34, dr sand 300 ft.

LOS OLIVAS—L. B. Tannehill's McGilvray 1, dr shale 1105 ft.

ORELLA—General Pet.'s Erubru 2, lcn; Erburu 3, dr 1275 ft. Oakburn Oil Co.'s Brown 168-1, 16-in cas cmt 200 ft; Sperry 169-1, 16-in cas cmt 200 ft; Larson 171-1, validation work; Maynard 172-1, dr 150 ft. Shell's Covarrubias 1, rigging up to deepen from 1305 ft.

POINT CONCEPCION—Standard's Gerber 1, dr hard sand 3636 ft.

SAN MARCOS — California Oil Properties' Fortine 1, 3-4-28, testing water shutoff, 4005 ft.

SANTA MARIA—Shell's Careaga 1, coring 4115 ft.

VENTURA COUNTY

CONEJO—Trunfo Oil Co.'s 1, 24-1-19, dr gray sand 1622 ft.

OJAI—Continental's 3, 21-4-22, sr 6056 ft. Gilmore-Bishop's Pirie 1, plugged back from 2060 ft. M. K. T. Oil Co.'s 1, 13-4-22, dr shale 3980 ft.

OXNARD—Shell's Leonard 1, coring 2888 ft; Terry 1, coring 2578 ft.

PIRU—Bolsa Chica's Snow 1-A, dr shale 1575 ft. Fennell's Lankershim 1, 13-4-19, dr sand 518 ft.

RINCON—Associated's Snowball 1, 19-4-24, dr sand 315 ft.

SANTA PAULA — San Pedro-Pt. Fermin Synd.'s Kellerman 1, 13-4-21, re-dr 3315 ft.

SATICOY—Standard's Citrus 5, 10-2-22, iron cmt cut off, td 8460 ft.

MISCELLANEOUS

FRESNO COUNTY—Pet. Securities' Ladd 1, 28-20-16, sd 7380 ft. Currency Pet. Co.'s 1, 28-21-14, dr shale 2860 ft. Western Gulf's Welsh 1, 26-15-12, rig.

KINGS COUNTY—H. B. Porter's 1, 9-24-17, re-dr 2400 ft. J. E. O'Donnell's 1, 7-23-20, co 1880 ft.

MADERA COUNTY—George F. Getty's Gill 1, 18-13-16, coring 4622 ft.

MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, 14-12-17, dr gray sand 1965 ft.

MONTEREY COUNTY—Standard's Piedmont 1, 23-22-7, dr shale 3380 ft. Union's Paige 1, 8-22-8, running 10-in cas to 2695 ft.

SAN LUIS OBISPO COUNTY—Midwest Oil Co.'s Hately 1, 34-31-15, 8⅝-in cas cmt 2410 ft. Pismo Dome Oil Co.'s Pricco 2-A, 5-31-13, dr shale 1255 ft; No. C-1, 5-31-13, fsh 1105 ft. Union's Chandler 1, 12-32-14, dr 5238 ft.

TULARE COUNTY—Terra Bella Oil Co.'s Gardiner 1, 35-22-27, dr clay 728 ft. Roy White's 1, 8-23-6, dr sand 2682 ft.

SOUTH CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
SEAL BEACH—		
Shell, Alimitos Land Co. 1	*	4573

BANDINI — George F. Getty's Kellam 1, 18⅝-in cas cmt 890 ft.

BELLFLOWER — Clearwater Pet. Co.'s Candler 1, dr shale 3600 ft.

CALABASAS—J. W. Martin's 1, co 950 ft. Olympic Pet. Corp.'s 1, dr shale and rock 580 ft.

COMPTON—California Well Drilling Co.'s Del Amo 1, co to re-cmt, td 8500 ft.

EL MONTE—Morgan West's Sing 1, dr shale 1660 ft.

La Habra—R. C. Rucker's Grazide 1, running tubing, td 3270 ft. Union's Sansinena 1, re-dr 2175 ft.

NEWHALL — National Security Oil Co.'s Sheperd 1, dr 866 ft. R. L. Rogers' Warren 1, dr shale 707 ft.

NEWPORT — Mesa Pet. Corp.'s B. G. 1, plugged to 2600 ft.

PIRU—Consolidated Oil Co.'s Hammond 1, fsh for bit 1090 ft.

POINT DUME—Raleigh Oil Co.'s Rindge 3, dr shell 3580 ft.

POMONA—Grimes-Girrard's 1, dr shale 200 ft.

PUENTE—The State Co.'s Richfield 1, dr gray sand 3950 ft. Western Gulf's Diamond Bar 1, dr shale 2055 ft.

RICHFIELD—Weber & O'Brien's Brown 1, sd 5450 ft.

SEAL BEACH—Continental's Bryant 1, dr shale 6550 ft.

SOUTH LOS ANGELES—William Diller's 1, dr shale 3188 ft.

TELEGRAPH CANYON—Union's Rimpau 1, dr 2525 ft.

WILMINGTON—Archer Oil Co.'s Watson 1, will deepen from 5565 ft.

RIVERSIDE COUNTY—Hemet Pet. Co.'s Ward 1, dr shale 3517 ft.

SAN BERNARDINO COUNTY—Mahala Oil & Gas Co.'s pumping some oil, td 4217 ft.

SAN DIEGO COUNTY—Borderland Exploration Co.'s 1, dr shale 1838 ft.

E. & T.
Ball Bearing Liner Set Screw

This device will pay for itself by eliminating broken and chipped liner flanges. Prevents bent and locked set screws, eliminating shut downs and shop expense. More pressure can be exerted against a liner using an 18-inch wrench and an E. & T. Ball Bearing Set Screw than with a 36-inch wrench and an ordinary set screw. Made in all sizes for all pumps and the cost is but little more than ordinary set screws.

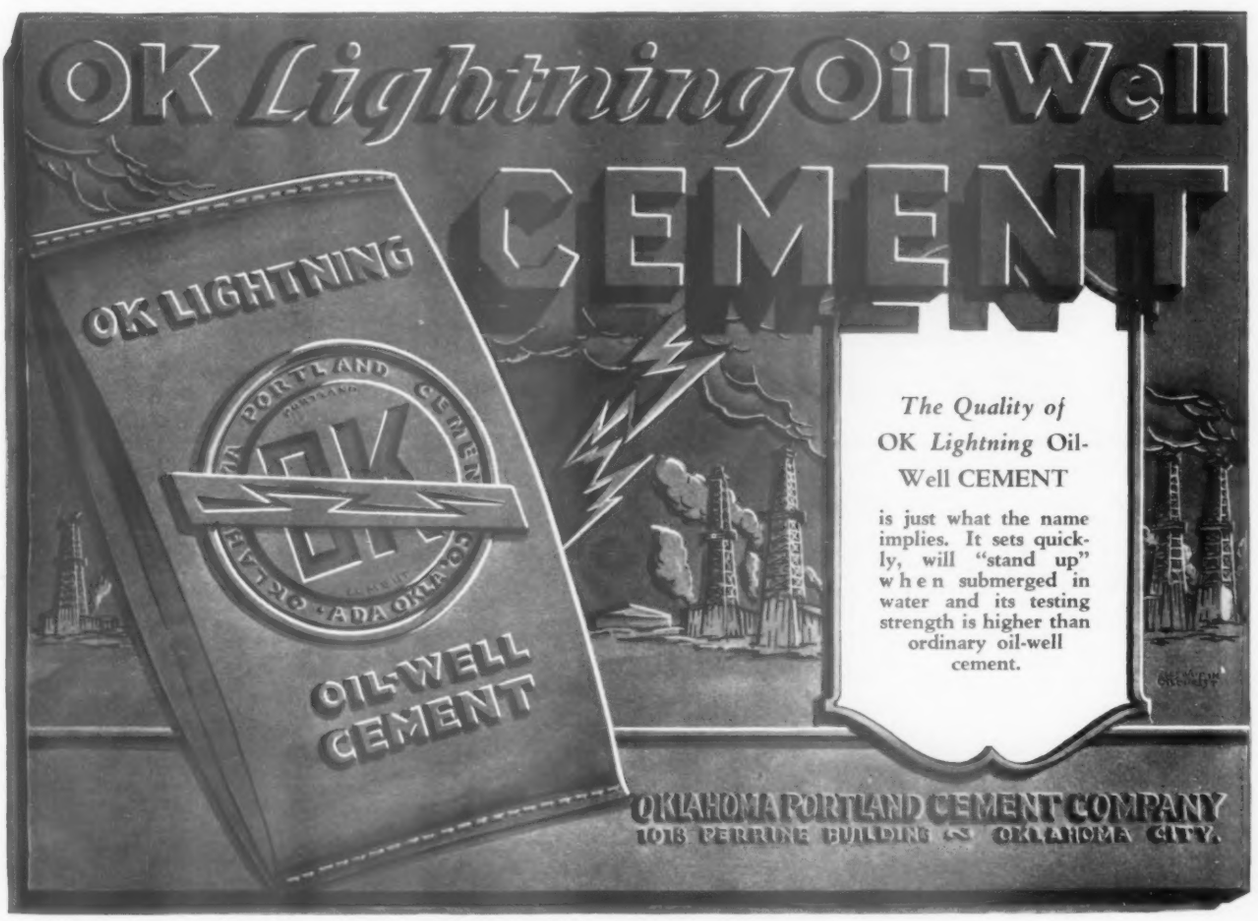
EASON & THEROLF TOOL COMPANY

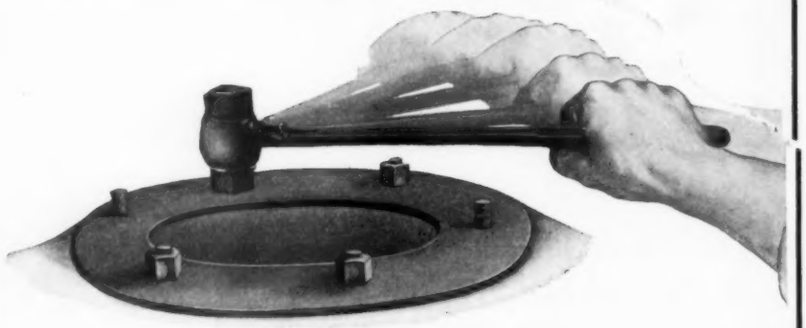
Box 59, Los Nietos, California

R. E. GILLESPIE, *Mid-Continent Distributor*

2737 W. 20th St., Oklahoma City

Gulf Coast Representative—T. T. WORD SUPPLY CO., Houston, Texas


OK Lightning Oil-Well
CEMENT
OK LIGHTNING
OIL-WELL CEMENT
The Quality of
OK Lightning Oil-Well CEMENT
is just what the name implies. It sets quickly, will "stand up" when submerged in water and its testing strength is higher than ordinary oil-well cement.
OKLAHOMA PORTLAND CEMENT COMPANY
1018 PERRINE BUILDING OKLAHOMA CITY.



With the Rapid Gliding Motion of its Ratchet Considerable Time is Saved in Nut Turning by Using the

FAVORITE REVERSIBLE RACHET WRENCH

which does not leave the nut until seated or removed.

Does not slip off the nut.

Contrast this with the old-fashioned open end wrench that has to be removed at every part turn to get a fresh hold on the nut, and is forever slipping.

THE "FAVORITE" IS A TIME-SAVING TOOL

Write to us for particulars.

Greene, Tweed & Co.

Sole Manufacturers

109 Duane St. New York

BUILT STRONG
FOR
ROUGH USAGE.

Heydrick's Texas Maps

COUNTY MAPS COMBINATION MAPS

DISTRICT MAPS

Descriptions and prices on application.

HEYDRICK MAPPING COMPANY

Wichita Falls, Texas

KANSAS

SUMNER COUNTY — Davidson et al's Strickland 1, sw se, 12-35-1w, rig.

STEVENS COUNTY — W. Sidwell et al's Kelly 1, sw ne 16-34-38w, sd 1600 ft.

BARBER COUNTY—Skelly's Temple Ranch 1, sw ne 13-34-15w, dr 4580 ft.

SUMNER COUNTY — Morgan and Carey, Kawkins 1, sw se, 9-34-1e, dr 3743 ft.

COWLEY COUNTY — Edenfield & Fair's Wallace 1, cwl ne 17-34-4e, 2M gas 365-75 ft, sd.

STEVENS COUNTY — McNabb et al's Ramey 1, c sw 1-33-38w, rig.

CHAUTAUQUA COUNTY—Valentine Oil's Purcell 1, nw se sw 2-33-9e, spd.

SEWARD COUNTY—Mangle's Younger 1, c se nw 24-32-3w, spd and sd. Argus Gas Co.'s Hobble 1, c sw 17-32-37w, dr 1535 ft.

BARBER COUNTY — Robertson et al's Powell 1, c se se 11-32-10w, td 3650 ft, show gas, rng 8-inch csg.

COWLEY COUNTY— Fine et al's Brown 1, sec 8-32-4e, dr 1825 ft. Prairie's Desbaugh 1, sec lot 27, 18-32-8e, rog.

HARPER COUNTY—Beeler et al's Bear 1, c nw 21-31-6w, dr 1200 ft.

SUMNER COUNTY—Kingwood's Stayton 1, c ne 18-31-2w, chat 3845-70 ft, bailer oil per hr., sd 3920 ft. Taylor & Pay's Mc-Cutcheon 1, c ne sw se 12-31-2e, dr 750 ft.

COWLEY COUNTY—Milton & Mead Bros., Tatum 1, se sw 11-31-6e, sd 1920 ft.

SUMNER COUNTY—Hatfield et al's Dauber 1, nec 18-30-1w, spd and sd. Lario et al's Osborne 1, ne se 20-30-1w, hfw 3590-360[illegible] ft, sd 3680 ft.

COWLEY COUNTY—Prairie Leighty's Ball 1, sw se 4-30-5e, Wilcox 3354-61 ft, hfw, dry and abn.

ELK COUNTY—Empire & Arkansas Fuel's Record 1, c nw ne se 32-30-10e, td 1603 ft, fsh cas. H. F. Fleming's Sherod 1, nwc 16-29-9e, ru.

PRATT COUNTY—Jones & O'Haver Lunt 1, csw nw 15-28-14w, td 4743 ft, fsh.

KINGMAN COUNTY—D. P. Fleeger's Ashbraft 1, 16-28-7w, Wilcox 4343-50 ft, hfw, td 4445 ft, sd.

SEDGWICK COUNTY — Continental & Amerada's Sensroth 1, nw c 25-28-4w, hfw, 4203-23 ft, td 4290 ft, sd. McCulloch's Buckles 1, nw se 3-28-1w, fsh 1115 ft. La Font et al's Carlton Bros. 1, c se se nw 24-28-1e, sd 1685 ft.

FORD COUNTY—McNabb et al's Unknown 1, c se 26-27-22w, sd 400 ft.

KINGMAN COUNTY—White Eagle et al's Lorenz 1, c ne sw se 25-27-5w, dr 4001 ft.

BUTLER COUNTY—Martin et al's Flanigan 1, c sw se sw 29-27-3e, sd 1930 ft.

GREENWOOD COUNTY — F. Kondaur et al's Rock 1, ne nw ne 7-27-12e, sd 750 ft.

PRATT COUNTY—Skelly's Johnson 1, ne sw 21-26-17w, dr 3585 ft. Wilcox's Unknown 1, sw nw 7-26-15w, dr 2275 ft. O'Haver & Jones' Careke 1, c ne sw 7-26-14w, hfw 3455 ft, td 3590 ft, ur 8-nich cas.

RENO COUNTY—Wilson et al's McPheeters 1, c s½ nw, 22-26-8w, show oil 3385 ft, cemtd 8-inch cas, sd.

SEDGWICK COUNTY—Travender et al's McLean 1, se sw se 23-26-1w, spd and sd.

BUTLER COUNTY—Shell's Harper 1, sw ne 35-26-3e, dr 1520 ft. Lario's Miller 1, ne se ne 36-26-3e, Siliceous 3072-85 ft, hfw, dry and abn.

HODGEMAN COUNTY—Swain et al's Kenthorne 1, c nw 21-25-24w, dr 520 ft.

EDWARDS COUNTY — Dixie-Amerada's McCarty 1, sw 22-25-17w, dr 3565 ft. Barnsdall's McCarty 1, nw ne 31-25-17w, dr 3[illegible]25 ft.

GREENWOOD COUNTY—Ward Mc[illegible]innis' Henley 1, sw ne 23-25-9e, dr 1740 ft.

RENO COUNTY—Skelly, Birkett, 1, ne sw 30-24-7w, td 4137 ft, fsh.

HARVEY COUNTY — E. W. Marland's Neiman 1, c ne se ne 8-24-3e, chat 2893-98 ft, 5-90 ft, dr 4 bailers water per hour, hfw 29[illegible] 3150 ft lime.

WOODSON COUNTY—O. I. O. Oil Co.'s Hoagland 1, sw ne ne 2-24-14e, ru.

STAFFORD COUNTY — Gibson et al's Mueller 1, c sw 11-23-14w, hfw 2420 ft, td 2960 ft, ur 8-inch cas.

HARVEY COUNTY—Liggett's Regier 1, c

TUNE IN

The Studio Cast of a "Westinghouse Salute"

the Romance of PETROLEUM

TUESDAY, FEBRUARY 4TH

Westinghouse invites you to tune in . . . 10:00 P. M., Eastern Standard Time, for one of a series of new and distinctive radio programs . . . a "Westinghouse Salute" to the Oil and Gas Industries, February 4th. An orchestra of 50 pieces, a wordless chorus of 40 voices, full cast of actor-stars from the legitimate stage . . . through a coast-to-coast NBC network including stations KDKA, WBZ, WBZA, and KYW.

Westinghouse

SALUTES THE OIL AND GAS INDUSTRIES

MUDWATE
HEAVY DRILLING MUD
REG. U.S. PAT. OFFICE

WEIGHT
plus
SUSPENSION

Mudwate has specific gravity 400% greater than average slush. This texture is sufficient to build a stout wall to prevent caving in of shale and other structures. Mudwate is smooth and evenly distributed, thus giving perfect lubrication to the drill stem.

The Proper Method for
Gas Control While Drilling

WILSON SUPPLY COMPANY
1412 Maury St.
Houston Texas
OIL GAS AND WELL SUPPLIES
BRANCHES
Beaumont, Luling, Texas
Mudwate is Manufactured by
AMERICAN MINING & CHEMICAL CO.
Shreveport, La.

EASILY OPERATED BY ONE MAN . . . .
Simplest.. Fastest .. Safest
One of the 148 types of Drilling and Fishing Tools made by
ACME FISHING TOOL CO.
at Parkersburg W. Va.
Distributors and Dealers in all active fields

ACME B & R WIRE LINE CLAMP

se nw se 2-23-2w, fsh 3355 ft. Margaret Gay Oil Co.'s Grouse 1, nw ne nw 29-23-1w, sd 3360 ft.

HODGEMAN COUNTY—Phillips' Houseman 1, c nw ne 30-22-22w, show oil and hfw 4620-34 ft, sd.

RENO COUNTY—Witt et al's Olsen 1, se nw 14-22-6w, hfw 2845-80 ft, rng 8-inch cas.

HARVEY COUNTY—Superior's Regier 1, se nw 11-22-3w, top chat 3160 ft, td 3164 ft, ur 8-inch cas.

RENO COUNTY—Burgher's Fair 1, c se ne ne 14-21-10w, dr 1860 ft. Boucher et al's Boy 1, swc 16-21-10w, est. 6M gas 2550-2555 ft, sd.

McPHERSON COUNTY—McCulloch's Cornelius 1, swc 7-21-4w, hfw 3500 ft, ur 6-inch cas 3421 ft.

LYON COUNTY—F. A. Bailiere's McKee 1, sw ne 32-21-11e, dr 750 ft.

RUSH COUNTY—Prairie's Black 1, sw ne ne 11-20-18w, td 3500 ft, rng 8-inch cas.

RICE COUNTY—Miller & Detrick's Shoumway 1, c sw 2-29-9w, sd 3636 ft. McCulloch's Williams 1, c ne 35-20-8w, rog. Derby's Johnson 1, c nw ne se 24-20-6w, hfw 2825 ft, dr 2845 ft.

McPHERSON COUNTY—Millmack's Decker 1, nwc 11-20-3w, skidded rig, sd 1215 ft. Reynolds' Koehn 1, ne se ne 15-20-2w, td 3450 ft, ur 5-inch cas.

CHASE COUNTY — Steinbushel et al's Stephenson 1, ne sw 4-20-6e, sd 500 ft.

LYON COUNTY—Sheedy et al's Reese 1, sw se 16-20-10e, dr 700 ft.

RUSH COUNTY—Danciger's Bell 1, c sw 16-19-8w, sd 2780 ft.

McPHERSON COUNTY—Transcontinental's Alger's 1, ne sw 1-19-5w, td 4012 ft, ur 5-inch cas.

MARION COUNTY—Empire's Black 1, c ne nw sw 27-19-2e, dr 1930 ft. Marshall et al's Higgins 1, nec 33-19-5e, rig.

CHASE COUNTY—Steinbushel et al's Cook 1, sec 195 27, 31-19-8e, sd 900 ft.

LANE COUNTY—Robinson et al's Dickerson 1, swc nw se 11-18-27w, sd 2625 ft.

RUSH COUNTY — Millmack's Mohr 1, c nw 11-18-16w, dr 750 ft.

RICE COUNTY—Tatlock et al's Ploog 1, c sw se 33-19-9w, rog. Urschell et al's Lipps 1, c sw sw 27-18-6e, dr 110 ft.

CHASE COUNTY—E. W. Marland's Altenmus 1, se ne 33-18-3e, td 2550 ft, skidding rig.

BARTON COUNTY—Slick et al's Sweeney 1, sw ne 23-17-11w, sd 3110 ft.

ELLSWORTH COUNTY—Tatlock et al's Sacken 1, c sw se 25-17-9w, ur 10-inch cas 2315 ft.

McPHERSON COUNTY — Dixie's Johnson 1, swc 20-17-3w, td 2190 ft, ur 10-inch cas. Galt-Brown et al's Zeitlow 1, c ne se se, 7-17-1w, ru and sd.

MARION COUNTY—White Eagle et al's Ucker 1, ne nw 24-17-2e, siliceous 3205-15 ft, hfw, td 3265 ft, dry and abn.

BARTON COUNTY—Prairie's Davidson 1, nw se 4-16-11w, dr 520 ft.

DICKINSON COUNTY—Prairie & Phillips' Rumold 1, c nw sw ne 12-16-2e, dr 1870 ft. Hiatt & Durham, Went 1, nwc 17-16-2e, spd.

MORRIS COUNTY—Urschell et al's Scott 1, ne sw 6-16-6e, sd 1600 ft.

TREGO COUNTY—Prairie's Kutina 1, c ne sw ne 29-15-21w, td 3900 ft, ur 6-inch cas.

ELLIS COUNTY — Rush Oil Co.'s Gatewood 1, nw 4-15-20w, sd 2555 ft.

ELLSWORTH COUNTY — Templeman's Lanbangagen 1, e sw 20-15-5w, sd 3805 ft.

SALINE COUNTY — Austin's Olsen 1, c nw sw se, 10-15-4w, sd 3690 ft.

DICKINSON COUNTY—Cress et al's Sandon 1, nec 12-15-2e, rig.

TREGO COUNTY — Dixie & Amerada's Reitmeyer 1, c ne ne 19-14-21w, dr 1095 ft. P. & R. Kingsley 1, c se nw nw 24-14-21w, show oil and hfw 3925-55 ft, td 3983 ft, dry and abn.

DOUGLAS COUNTY — Steinbushel et al, Unknown 1, sw ne nw, 34-14-21e, ru.

ELLIS COUNTY—Streeter & Stearns Laiker 1, sw ne 26-13-20w, sd 1294 ft.

SALINE COUNTY—Twin Moulds, Hughes 1, cw½ ne nw 20-13-4w, 700 ft, sd.

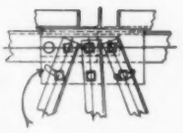
DICKINSON COUNTY — Krueger et al's Diche 1, c nw ne ne 17-13-4e, hfw 3290-2400 ft, sd.

TREGO COUNTY—Phillips' Spitz, se c 24-12-25w, show oil 4160-65 ft, sd. Day's Guyler 1, c sw ne ne 36-12-21w, sd and spd. E. H.

INTERCHANGEABLE LEGS

...and other..

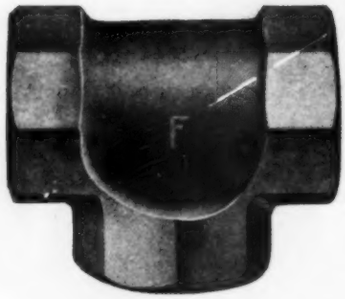
Desirable Features of the K.M.CO.A.P.I. DERRICK



THE KIRK-MORROW IRON WORKS COMPANY

Sales Offices: Hunt Bldg., Tulsa, Oklahoma; Magnolia Bldg., Dallas, Texas; Central Bldg., Wichita, Kansas.

FITTINGS *for* THE FIELD



Forged Steel

ELLS and **TEES**

For pressures up to 3000-lbs.

Our Houston Stock of FITTINGS, forged and machined from solid steel billets, is most complete. Large quantities of the following sizes are carried at all times:—

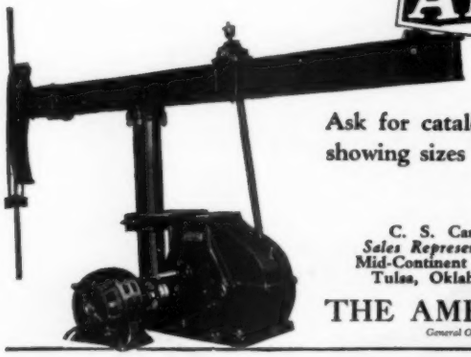
1/8"; 1/4"; 3/8"; 1/2"; 3/4"; 1"; 1 1/4"; 1 1/2"; 2"; 2 1/2" and 3" all with 11 1/2 threads per inch.

2 1/2"; 3" and 4"; with 8 threads per inch.

MAINTENANCE ENGINEERING CORPORATION

P. O. Box 1402 Preston-2274 — LD-409

HOUSTON, TEXAS



AMERICAN
AURORA, ILL.

Ask for catalog on American Pumping Units, showing sizes for various depths and capacities of wells.

C. S. Carter, *Sales Representative* Mid-Continent Bldg., Tulsa, Oklahoma

Wm. Pierce, *Sales Representative* 701 Elm St., Dallas, Texas

THE AMERICAN WELL WORKS

General Offices AURORA, ILLINOIS *and Factory*

Standard Supply and Hardware Company

Incorporated

NEW ORLEANS, LA.

OIL WELL AND OIL REFINERY SUPPLIES

Dynamite and Blasting Equipment — Camp Equipment

STEAM GOODS—HARDWARE—MACHINERY—RAILWAY MILL AND PLUMBING SUPPLIES

PIPE—VALVES—FITTINGS—BOILER TUBES—WELL CASING

FLEXIBLE TUBING—HOSE—PACKING—LEATHER AND RUBBER BELT

PAINTS OILS AND VARNISHES

PIPE CUTTING AND PIPING OF PLANTS A SPECIALTY

P. O. Drawer 620
Long Distance Phones
Raymond 2251 to 2256 Inc.
Cable Address "GIST"
Codes Used—
A. B. C. 5th Edition.
Western Union.

William K. DePass, *President*
J. M. Kinabrew, *Vice-President*
Cal F. Hadden *Secretary-Treasurer*

Office and Salesroom
822-838 Tchouptitoulas St.
Bet. Julia and St. Joseph

Morgan's Whithair 1, nw se 9-12-1e, sd 150 ft.

SHAWNEE COUNTY—Jenkins & Scott, Haden 1, ne se 8-12-14e, sd 750 ft. Jenkins & Scott, Haden 1, se nw 10-12-17e, sd 550 ft.

ELLIS COUNTY—Byrens' et al's Fisher 1, nw se 4-11-20w, sd 1000 ft.

SHAWNEE COUNTY — Jenkins & Scott, Unknown 1, nw ne 2810-15e, sd 985 ft.

JEFFERSON COUNTY—Wichita Oil Co.'s Simpson 1, nw sw sw 19-10-17e, ru and sd.

ROOKS COUNTY — Central Commercial's Toxa 1, ne sw se 28-9-17w, sd 3626 ft. Kruger's Steis 1, nw se sw, 12-9-16w, sd 570 ft.

CLAY COUNTY—Chrisler's Tivler 1, swc 19-8-3e, spd and sd.

GRAHAM COUNTY—Madolin's Unknown 1, c se sw sw, 27-7-26w, spd and sd.

OSBORNE COUNTY — Phillips Grieve 1, nw se ne 6-7-12w, sd 4232 ft.

RILEY COUNTY — Derby-Skow Bros.' Lundstrum 1, ne 32-7-5e, sd 2270 ft.

OSBORNE COUNTY—Mid-Kansas' Boyce 1, se nw 8-6-13w, td 4860 ft, dry and abn.

RILEY COUNTY—Gray et al's Smith 1, ne se 30-6-6e, sd 1970 ft.

SMITH COUNTY — Phillips' Clydevale 1, se nw 23-6-14w, td 4075 ft, ur 6-inch cas.

NORTON COUNTY—A. L. Richards' Colby 1, c sw 17-4-21w, rig.

WASHINGTON COUNTY—McCool & Vicent's Linn 1, nw ne 27-4-3e, sd 3100 ft.

OKLAHOMA

WOODS COUNTY—T 28n, R 16w, Sec. 23, Peerless, Cromwell 1, c nw ne, dr at 2645 ft.

GRANT COUNTY—T 28n, R 7w, Sec. 27, Gypsy Oil Co., Bilderback 1, se, show oil and gas 4058-65 ft. T 28n, R 4w, Sec. 12, Boucher et al, Dedmon 1, swc se, hfw 3105-30 ft, sd 4735 ft.

WOODS COUNTY—T 27n, R 16w, Sec. 33, Sinclair, Share 1, c ne sw, show oil 5405-15 ft, water 5460-65 ft, show gas 5600-15 ft, dr 6268 ft.

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros., Forbes 1, ne c se nw nw, sd 1420 ft.

HARPER COUNTY—T 26n, R 24w, Sec. 14, Sinclair, Howell 1, c sw sw, drlg at 6510 ft.

GRANT COUNTY—T 26n, R 3w, Sec. 23, Otstot Dev. Co., Tapor 1, nec se, hfw 3100-25 ft.

KAY COUNTY—T 26n, R 2e, Sec. 32, J. A. Vincent et al, McNeal 1, nwc ne, sd 2795 ft.

WOODS COUNTY—T 25n, R 15w, Sec. 10, Bu Vi Bar et al, Fee 1, sec sw, dr 6100 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Cowden, Vollmer 2, nec se ne sw, lost tools 5640 ft, sd.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey et al, Acre 1, c sw ne, water 4638-40 ft, 8-inch 4660 ft, r.u.s.t.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer, White 1, sec nw, hfw, 4730-4800 ft, td 5556 ft, sd.

WOODWARD COUNTY—T 23n, R 20w, Sec. 9, Harris & Haun, Wyatt 1, c se, hfw 4390-4400 ft, dr 5125 ft.

NOBLE COUNTY—T 22n, R 1e, Sec. 22, Peerless, Wentz 1, nwc sw, hfw 1938-53 ft, Layton 3279-82 ft, 1500 ft oil in hole, set 6-in. casing.

WOODWARD COUNTY — T 21n, R 21w, Sec. 25, Sharon, Elmore 1, swc, rig blown down, sd 3025 ft. T 21n, R 19w, Sec. 15, Burgoyne Bros., Merklin 1, swc se ne, sd 1910 ft.

MAJOR COUNTY—T 20n, R 14w, Sec. 23, Keller et al, Horton 1, c ne ne, spd and sd.

GARFIELD COUNTY—T 20n, R 4w, Sec. 10, Continental et al, Brown 1, cel ne nw sw, show gas 3145-62 ft, set csg at 4650 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma Pet. Co., Phillips 1, c nw sw, sd 2945 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healy et al, Quier 1, sec sw, sd 3970 ft.

KINGFISHER COUNTY — T 16n, R 7w, Sec. 6, Gault-Brown, Boch 1, c nw se (owdd), cored 6022 ft, sd.

LINCOLN COUNTY—T 17n, R 4e, Sec. 4, Wheeler & Mote, Funnell 1, nec se, fsh 680 ft. T 17n, R 5e, Sec. 16, Ed Jilson & Kemp School Land 1, sec sw, dr 1225 ft. T 13n, R 6e, Sec. 21, Shell, Pharris 1, nec nw, Simpson 4293-95 ft, swab 50 bbls.

OKFUSKEE COUNTY—T 12n, R 9e, Sec. 36, Henry Oil Co., Harjo 1, nwc, td 2785 ft, csg collapsed, fshg. T 12n, R 10e, Sec. 3,

General Offices

65 Broadway New York

AMERADA CORPORATION

(Operating Subsidiary)

Amerada Petroleum Corporation

Producers of Crude Oil and Natural Gasoline

Petroleum Building
TULSA - OKLAHOMA

W. T. Waggoner Building
FORT WORTH - TEXAS

Security Dealer

Desires Attractive Stock Issue to Present Investors

W. E. A. Wheeler & Co.
Established 1906
90 Wall Street
NEW YORK CITY

C. W. WEBSTER

West Texas Oil and Gas Leases
⅞ *Mineral Deeds*

ROYALTIES

18 Years in Texas

Reference: Mercantile Agencies and National Banks

Petroleum Building
FORT WORTH, TEXAS

THE FT. WORTH LABORATORIES

Field Gas Testing. Analysis of oil field brines, gas minerals and oil. Sell Thermometers, Hydrometers and Laboratory Glassware.
F. B. Porter, B. S., Ch. E., Pres.
R. H. Fash, B. S., Vice-President
828½ Monroe St, Ft. Worth, Tex.

PATENTS
Patents Obtained and Trade Marks and Copyrights Registered
HARDWAY & CATHEY
428-29-30 Bankers Mortgage Bldg.
Phone Fairfax 8232 Houston, Texas

PATENTS
Patents Obtained, Trade Marks, Patent Causes
JESSE R. STONE
Formerly Assistant Examiner
United States Patent Office
Andrews, Streetman, Logue & Mobley
12th Floor Union N. Bk., Houston, Texas

HIRSCH, BROWN AND SUSMAN
Attorneys at Law
32nd Floor Gulf Building
Houston, Texas
Specializing in Oil Law and Land Law

MAJESTIC HOTEL
LAKE CHARLES, LA.
Your home while in Southwest Louisiana
Headquarters for Oil Co. Representatives

MONITEUR DU PÉTROLE ROUMAIN

PARAIT LES 1 ET 15 DE CHAQUE MOIS • FONDÉ EN 1900 • RÉDIGÉ EN ROUMAIN ET EN FRANÇAIS

Rédaction et Administration : BUCAREST I., Rue Aristide Briand (Regnié) 21. - Téléphone 315 97

Sheppard et al, Shepard 1, sec nw sw, top Wilcox 3638 ft, td 3660 ft, sd.

MUSKOGEE COUNTY—T 11n, R 19e, Sec. 21, E. Mills et al, Martin 1, nwc se, sd 1001 ft.

McINTOSH COUNTY—T 10n, R 14e, Sec. 31, Jennings Bros., Crabtree 1, sec nw sw, 1M gas 960-80 ft, sd 3500 ft.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al, McDuff 1, swc nw se, Wx 5443-5511 ft, show oil 5446-70 ft, 1M gas 5464-80 ft, fsh tools and csg 5560 ft.

HASKELL COUNTY—T 9n, R 18e, Sec. 10, Marion Co., Sanders 1, nwc ne sw, 2M gas at 1800 ft, sd 2692 ft.

LATIMER COUNTY—T 7n, R 22e, Sec. 36, J. S. Cochran et al, Cushing 1, nwc se se, sd 2100 ft. T 6n, R 22e, Sec. 23, Limstone O&G Co., Shaw 1, nwc ne nw, dr 1700 ft.

OKLAHOMA COUNTY — T 13n, R 1w, Sec. 13, Tom Slick, Inc., Martin 1, c nw nw, td 6964 ft, bailed salt water. T 13n, R 3w, Sec. 35, Magnolia-Ramsey, Johnson 1, ne ne sw, dr 3983 ft. T 12n, R 3w, Sec. 30, Magnolia, Noble 1, nwc sw sw, dr 7090 ft. T 11n, R 2w, Sec. 3, Ryan Consol. Co., Lawton 1, nec nw, dr 3900 ft.

HUGHES COUNTY—T 9n, R 8e, Sec. 12, Magnolia, Brown 1, sec ne, dr 3174 ft. T 9n, R 12e, Sec. 29, Canady et al, Kanard 1, sw nw nw, ts 2815, 1M gs, sd for csg.

POTTAWATOMIE COUNTY — Sec. 30, Keister & Manning, Rowlett 1, sw se ne, 8-in. at 4254 ft.

SEMINOLE COUNTY—T 8n, R 5e, Sec. 23, Gypsy et al, Bruner 1, nec se nw, 8-inch at 4207 ft. Sec. 26, Continental et al, Harjo 1, nwc se, ts 4414-15 ft, 600 ft, water, sd.

CLEVELAND COUNTY—T 6n, R 1e, Sec. 20, Harris & McNeil, Corbett 1, c sw ne, r.u.r.

POTTAWATOMIE COUNTY—T 6n, R 3e, Sec. 22, Payne Drlg. Co., Bullock 1, se se ne, 8-inch at 3932 ft. Sec. 36, Sykes et al, Cook 1, sw nw ne, rig.

SEMINOLE COUNTY—T 6n, R 8e, Sec. 31, Magnolia, Reed 1, nec se nw, dr 2190 ft.

HUGHES COUNTY—T 5n, R 10e, Sec. 30, Irwin et al, Jones 1, sec ne, rig. T 5n, R 11e, Sec. 15, J. J. Wright, Roberts 1, sec sw, r.u.s.t.

PITTSBURG COUNTY—T 4n, R 12e, Sec. 32, Kerr & Key, Tall 1, c nw nw, sd 3502 ft.

ROGER MILLS COUNTY—T 12n, R 24w, Sec. 23, Bucy & Stone, Williams 1, c sw, cemtd surface pipe. T 11n, R 26w, Sec. 4, L. C. Hivick, Davis 1, c nw ne, sd 2840 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey, Robinson 1, c ne nw, sd 150 ft.

BECKHAM COUNTY—T 8n, R 22w, Sec. 20, Carson et al, Denby 1, swc se ne, td 1700 ft, sd.

GREER COUNTY—T 6n, R 24w, Sec. 17, I. T. I. O. & Becker, Fee 1, c ne, sd 2090 ft. Sec. 23, Helmerick & Payne 1, c nw nw, trying to drill by tools at 2210 ft.

CADDO COUNTY—T 6n, R 13w, Sec. 8, Abernathy & Brown, Horton 1, sec, sd 580 ft.

COMANCHE COUNTY—T 3n, R 9w, Sec. 3, Oklahoma Nat. Gas Co., Doebel 1, ne sw sw sw, sd 150 ft.

STEPHENS COUNTY—T 2n, R 8w, Sec. 30, Smith & Nash, Johnson 1, nec, sand 2480-83 ft, sd. T 3s, R 9w, Sec. 22, Pelwin Oil Co., King 1, (owdd) swc se, sd 3180 ft.

JEFFERSON COUNTY—T 5s, R 7w, Sec. 11, H. W. Lee, Hotubbi 1, (owdd), sec nw, td 2513 ft, sd.

McCLAIN COUNTY—T 5n, R 3e, Sec. 16, Homaokla Oil Co., Newsome 1, sec ne ne, sand 3587-91 ft, pump 12 bbls, td 3607 ft, may drill deeper.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al, Guinn 1, nwc sd 80 ft.

CARTER COUNTY—T 4s, R 2e, Sec. 32, Tex-Okla Drlg. Co., Anderson 1, sec ne se, fsh 1980 ft.

MARSHALL COUNTY—T 5s, R 5e, Sec. 17, Jordan et al, Penn Mutual Life Ins. Co., 1, nwc ne se, sd 700 ft.

BRYAN COUNTY—T 9s, R 9e, Sec. 36, W. C. Endicott et al, Craig 1, c nw ne, sd 2025 ft.

WOODWARD COUNTY—T 23n, R 17w, Sec. 23, The Prairie & Transcontinental, Wilbur 1, ne, dr 6024 ft.

CLEVELAND COUNTY—T 10n, R 2w, Sec. 8, Prairie, Slick & Phillips, Sudik 1, c ne ne, td 7720 ft, plugging, to test shallow formations.

McCollum Exploration Co.

Contracts taken for Seismograph Work

UNITED STATES
5522 Connecticut Ave.,
WASHINGTON, D. C.

FOREIGN COUNTRIES
1211 Esperson Bldg.,
HOUSTON, TEXAS

CHRISTIAN IDEN
U. S. Representative
Toepfer & Company
(Germany)

Geophysical Instruments

Magnetometers, Torsion Balances, Etc.
718 Esperson Building
HOUSTON, TEXAS

Agents Wanted for
Oklahoma and California

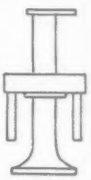
Coastal Oil Finding Company

Contracts taken for Torsion Balance Work

Esperson Bldg., Houston, Texas

Phone Fairfax 4383

EXPERT MECHANIC SHOP
Walter G. Thiele, *Prop.*
Repairs made on all kinds of Geophysical and Surveying Instruments.
Specialist on Torsion Balance.
17 Years Experience.
Phone T-8720 - 2723 Houston Ave.
Houston, Texas



"Photographs of Oil Fields and Machinery Must Be Right"
Calvin Wheat's Photographs Are Right!
CALVIN WHEAT STUDIOS
415 Louisiana St. Preston 2526
Houston, Texas

EOTVOS TORSION BALANCES
Suss-Eotvos Visual Observation
Suss-Rybar Visual or Automatic Observation
GEORGE STEINER
Exclusive representative for the Americas
Petroleum Building Houston, Texas

GEOPHYSICAL SURVEYS
Torsion Balance - Magnetometer

Survey by
GEORGE STEINER
Consulting Geophysicist
Petroleum Building,
Houston, Texas

Report by
DONALD C. BARTON
Consulting Geologist and Geophysicist
Petroleum Building,
Houston, Texas

Announcing - - -

Change of Address

from

Abilene, Texas

to

19th Floor W. T. Waggoner Building
FORT WORTH, TEXAS

GIBSON and JOHNSON (Inc.)
Oil Producers

WASHINGTON DERRICKS

Joint Construction

Write for Catalogue

O'Brien Steel Construction Co., Inc.
Washington, Pa.

Western Representatives:
RIG EQUIPMENT COMPANY,
1524 South St. Louis Street,
Tulsa, Okla.

Particular attention is directed to the ingeniously provided triple strength in the patented joints of Washington Derricks.

At first glance, this construction may seem similar to other steel derrick joints but close examination will reveal a greater amount of reinforcement and a simpler provision for butting and tightening as the derrick is erected.

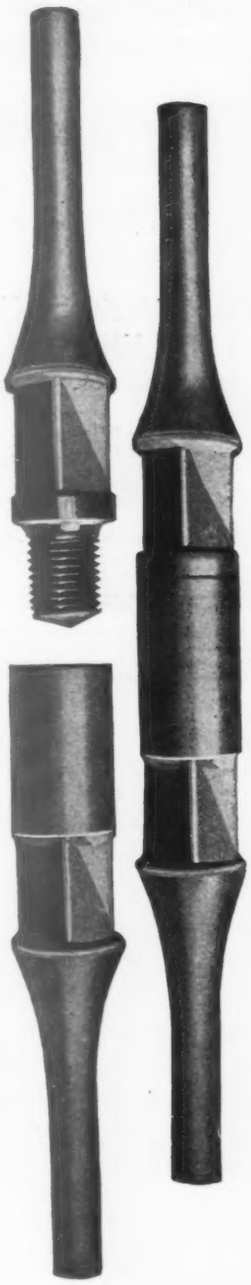
The Washington joint will stand out in any comparison with structural derrick joints as possessing maximum strength and as providing great rigidity to the derrick. Many users have remarked that there is less vibration in this derrick when spudding-in than with any other derrick they have used.

WASHINGTON STRUCTURAL STEEL DERRICKS

BUFFALO SUCKER RODS

Give Unexcelled Service

Buffalo Sucker Rods have been so successful that they have established a reputation for service unexcelled by any other oil field equipment. This rod was developed through close co-operation with oil producers — developed to meet a specific need— and it does.



ORDER BUFFALO RODS NOW

Whether you are drilling in Venezuela, Pennsylvania or Texas, Buffalo Rods will do the job well, with fewer shut-downs and breaks.

Write for Catalogue

BUFFALO BOLT COMPANY

NORTH TONAWANDA, N. Y.

SALES OFFICES

Monadnock Bldg., Chicago, Illinois
General Motors Bldg., Detroit, Michigan

PARMACO

Packers

Stuffing Box
Casing Heads

Steel Shoes

Write for Catalog.

THE PARKERSBURG MACHINE CO.
PARKERSBURG, W. VA.

The House of Courteous Service

The largest bonus ever given in the history of the Axelson Machine Company, Los Angeles, was announced at the thirty-seventh Annual executive dinner at the Biltmore Hotel, December 28. J. C. Axelson, president, stated that the year 1929 had been very prosperous and that prospects for 1930 were exceptionally good.

Clyde Ellwood, vice-president in charge of sales, stated that sales of Axelson oil well pumps and sucker rods was steadily increasing, enabling the Axelson plant to maintain full production.

Guests at the banquet included Clint Huyck, John Doan, W. E. Porter, Fred A. Worthey, D. H. Barnwell, William Jardh, A. G. Haglund, D. F. Axelson, J. C. Axelson, Clyde Ellwood, E. E. Kerfoot, W. H. Jackson, H. D. Young, Charles Dreek, Alan Spiher, H. S. Kelly, Ray Imhoff, George Hoke, H. E. Cassidy, R. M. Humphries, R. S. LeRoy, Walter Reese, Charles Dahl, C. Clark, S. R. Kimberley, R. O. Beeson, P. Apea, K. S. Ramey, W. F. Goertz, Sam Nichols, L. F. Merrill, Thomas Duff, B. H. Platts, Charles Lewis, Walter Youngblood, D. G. Gall, E. J. Phillips, A. Zwerneman, M. J. Parker, F. W. Krage, Carl Fromme, R. McGowan, John Leek, Martin Flemming, V. Mancuso, E. Ostrom and V. Capon.

McMAN OIL & GAS COMPANY

PRODUCERS of CRUDE OIL

AND

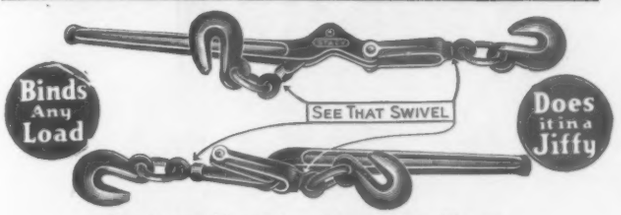
MANUFACTURERS of NATURAL GASOLINE

General Offices:

P. O. BOX 712 TULSA, OKLAHOMA

"BOOMERS"

Stacy Swivel Load Binders



No Load Too Big—None Too Heavy For This Handy, Time-Saving Tool

Stacy Swivel Load Binders make hauling safe and save time and work. They bind any load quickly, securely, easily. Made in 5 sizes, weighing from 2 lbs. to 14 lbs. for each single tool, not for a pair as commonly quoted, sold and used.

Every Oil Field in the World Uses Stacy Binders

Just ask your jobber or export agent for Stacy Load Binders in the size you want. He'll do the rest.

I also sell chains. Any weight, size or length with hooks or as desired.

EUGENE C. STACY
Manufacturer
Tiffin, Ohio, U. S. A.

TYLER BOILER TUBES

O. H. Steel Boiler Tubes
Armco Ingot Iron Boiler Tubes
Cop-R-Loy Boiler Tubes

Request full details

THE TYLER TUBE & PIPE CO.
WASHINGTON, PA

Warehouse Stocks

Harrisburg Pipe and Pipe Bending Co., Houston, Texas
Harrisburg Supply Company, Tulsa, Oklahoma
A. M. Castle & Co., Chicago, Seattle, Washington; San Francisco, Calif.; Los Angeles, Calif.
Lukens Steel Company, New Orleans, La.

ARMCO IRON LINE PIPE and OIL WELL TUBING

Petroleum Producers Company

JOHN F. O'DONOHOE, *President*

Producers of

Crude Petroleum

General Offices:
City National Bank Building
WICHITA FALLS, TEXAS

"Favorite of the Oil Fields"

UNRIVALLED for SERVICE

FENWICK-REDDAWAY MFG. CO.
Newark, N. J.

CAMEL'S HAIR, COTTON and LINEN PRODUCTS

Mid-Continent Representative
Arch F. Campbell
Tulsa, Okla.
Phone 2-1117

TELL TULSA!

When you need service on your Wico Magnetos, tell our Tulsa Branch Office 121 West 8th Street.

Our Tulsa Branch is there for your protection:—

1 to insure your getting genuine Wico parts.

2 to save you money.

3 to give you repaired machines as good as new ones.

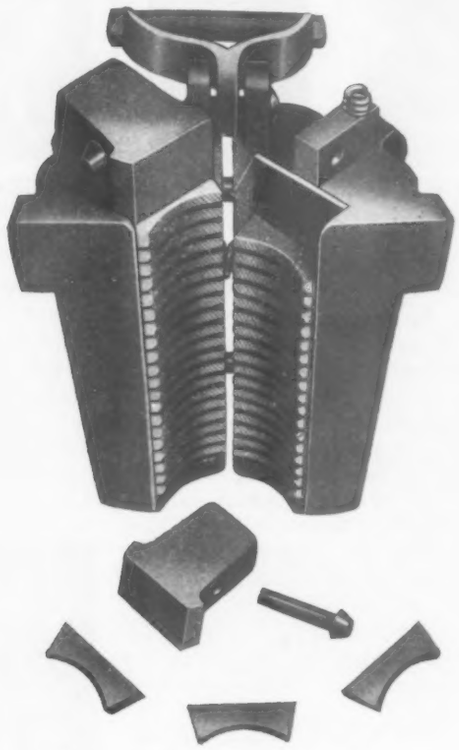
4 to help you with any of your field problems.

Let our Tulsa Branch be *your* trouble-saver!

FACTORY BRANCH: 121 West 8th St., Tulsa, Oklahoma

WICO ELECTRIC COMPANY SPRINGFIELD MASSACHUSETTS

NEW EQUIPMENT, CATALOGS, BULLETINS, BOOKS



Improved Rotary Slip

MISSION SALES COMPANY

Mission Sales Company, 2416 Railroad Street, Houston, is now turning out full production on the "Mission" rotary slip, which has recently undergone several important improvements to meet the demands of heavy loads in deep drilling.

The bodies and working parts of this slip are made of Hughes Tool Company chrome nickel steel, the dogs are heat treated by Reed Roller Bit Company, while the remainder of the work is done in Mission Sales Company's own shops.

The dogs are designed so as to be held at an angle by the back plate, and when the pipe is lowered the dogs are pulled down to grip the pipe. The heavier the load the tighter the grip, but the contact has a rolling instead of a biting effect. The design is such as to remove the possibility of marring, cutting or bottle-necking the drill stem inasmuch as the surface on the face of the dogs is flat. Precaution has been taken in the design to eliminate sticking of the slip in the rotary bowl or lifting up of the rotary as long as the rotary bowl is fastened to the rotary by the catch put there for that purpose. Thus the job of pounding or hammering on the rotary is eliminated. A bevel on the back of each of the dogs is in the construction to prevent this.

The dogs are now replaceable within a few minutes on the job, and are the only source of wear on the product. This feature is offered as the chief economical element in the slips, making it necessary for only one set of slips to be on one drilling job.

Further information will be furnished by the company.

Lucey Products Corporation announce that its 1930 Eluceydator Notebook is now being distributed. Besides space for memorandums and other notes, it carries many interesting facts and figures that should interest men in the field as well as oil operators, etc. These may be secured by writing to the Lucey Products Corporation office at 224 East Brady Street, Tulsa.

Chancellor Separator

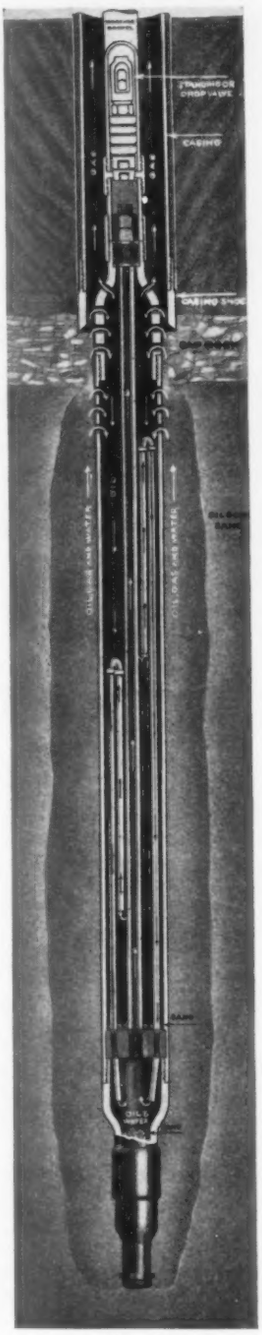
MILLER COMBINATION BAILER AND PUMP COMPANY

Miller Combination Bailer & Pump Company's new "Chancellor" separator is a new device designed to separate the gas, sand and water from the oil at the bottom of the well.

It is designed and constructed to be a positive gas anchor and is used below the working barrel at the bottom of the hole. Its purpose is to prevent cut oil by keeping the gas out of the tubing and pumping the water separate from the oil by use of perpetual siphon tubes. A head of water is pumped first and a head of oil pumped through the tubing, keeping worn barrel and cut cups from emulsifying oil and water.

This separator has two sand traps, as shown in the accompanying illustration, to settleout the sand. When the traps are filled with sand they may be flushed clean by pulling the lower valve which has no gas anchor attached. There is always a one-inch stream to the lower valve, and use of oversized valves are practical. The tubing being full of fluid offers the advantage of preventing paraffined tubing.

There are two sets of three rows each of perforations at the top to provide for the breaking up of gas heads and to allow the oil to flow easily into the separator. The separator top is closed to prevent cavings from above from clogging the mechanism. Extra heavy hydraulic swedged nipples are used on both the top and bottom. Either upset or common tubing nipples are furnished to screw the separator on the working barrel. A longer sand trap can be attached to the bottom of the separator. They are manufactured in lengths of from six to 18 feet, with an outside diameter of either 4½ or 4¼-inch. Special sizes are also made to order.



Chancellor Separator

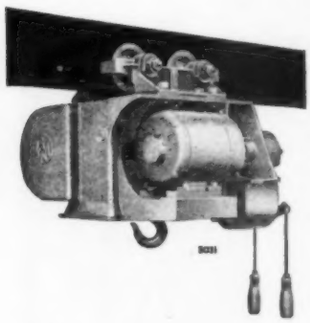
Further information is available upon request to the manufacturers.

Jack C. Ballagh, secretary of Patterson-Ballagh Corporation, is spending two weeks in the East visiting his New York office and also the Mid-Continent offices of Patterson-Ballagh Corporation. He will return to Los Angeles early in February.

Electric Hoists

ROBBINS & MYERS, INC.

Robbins & Myers, Inc., Springfield, Ohio, is now marketing the new R&M electric hoist. The motor is connected to the hoisting mechanism by a flexible disc coupling into which the short motor shaft extension is splined by sliding fit. The coupling is keyed to the motor shaft and remains integral with the motor, which is totally enclosed ballbearing, high torque. Cast steel trolleys are bolted to the hoist frames to allow for adjustment over many sizes of I-beams. The trolley wheels are equipped with ball and roller bearings. Combination wheel bumpers and safety lugs are incorporated in the trolley frame.



Adjustable current collectors are supplied with trolley hoists in types to suit the service. Either sliding or wheel type are furnished as standard, the former when stretched wire conductors are used. The hoist comes completely wired with protection secured by the use of armored conduit and outlet boxes wherever possible.

The rope operated controllers are fitted with return spring, which automatically returns the controller to the off position after the operating rope has been released. The bottom block holds the rope on the sheaves and shrouds the parts to guide a swinging block into the rope flare when up close to the hoist.

A factor of safety of five based upon the ultimate strength of the material is the least used, according to the manufacturers.

TULSA WAREHOUSE

Goulds Pumps, Incorporated, has opened a new warehouse at 213 Archer Street, Tulsa. The office at 705 Kennedy Building has been consolidated with the warehouse where R. T Roberts, district manager, is in charge.

R. B. Protzman, Byron-Jackson Pump Company, has been transferred from Tulsa to Refugio, Texas, as field salesman.

J. D. Cudney, formerly manager of oil and gas engine sales for Ingersoll-Rand Company, with headquarters at Dallas, Texas, on January 1 joined the sales force of the Cooper-Bessemer Corporation. Mr. Cudney's new position is that of special sales representative. With headquarters now at Mt. Vernon, Ohio, he will work on gas and oil engine problems.

Ed Blaylock, formerly connected with Peerless Supply Company in Tulsa, now is special sales representative in the oil country for the Graton & Knight Company of Worcester, Massachusetts, manufacturers of leather and rubber belting and mechanical rubber goods.

The International Supply Company of Tulsa is the exclusive distributor of Graton & Knight products in the oil country and Mr. Blaylock will maintain headquarters at the general offices of International Supply in Tulsa.

International Supply Company has been named exclusive distributor in the oil country for the products of the Titusville Iron Works, and G. A. Clark now is associated with International Supply as special machinery man to work the Titusville line.

JULE C. AXELSON

EVERETT KERFOOT

DELBERT F. AXELSON

AXELSON NAME CHANGED

Axelson Machine Company, Los Angeles, will hereafter be known as the Axelson Manufacturing Company, Ltd., and will increase its manufacturing capacity by the addition of units to its Los Angeles factory in order to produce new equipment of miscellaneous design in addition to the facilities already existing for the manufacture of oil well pumps, sucker rods, fittings and other tools. A second plant is located at St. Louis.

Each of the manufacturing divisions are to be operated separately but the entire ensemble will function as a unit under the direction of the same officers who have been in charge for a long period. The officers include: Jule C. Axelson, president; Delbert F. Axelson, vice-president; C. F. Axelson, executive vice-president; Clyde Ellwood, vice-president and director of sales, and Everett E. Kerfoot, secretary and treasurer.

The Axelson Aircraft Engine Company, a separate company, during the past year has been housed in a complete new plant.

CLYDE ELLWOOD

MORSE-GRAU COMPANY ORGANIZED

After spending many years in the development of tools used in manufacture of drilling tools and machinery, William S. Grau, well known designer, formerly production superintendent of the Union Tool Company, announces the formation of the Morse-Grau Tool & Manufacturing Company, 1520 East Slauson Avenue, Los Angeles, for the design and manufacture of special tools, gauges, jigs, reamers, boring bars, fixtures and milling cutters to order. The company has completed installation of lathes, shapers, milling machines, grinding equipment and electric and gas furnaces and the plant is in full operation, according to Mr. Grau.

W. S. GRAU

William S. Morse, owner of the Morse Counter Bore & Tool Company of Detroit, is president.

The company now has over 5800 square feet of floor space devoted entirely to specialized tool making and has installed a full line of tools and measuring instruments for precision work. It is understood that practically all of the work now being done is of special tools to blue print and that the company will service the entire Pacific Coast. Commercial heat-treating is also expected to become a specialty, due to the fact that the company has installed the latest equipment for this purpose.

The owners of the new company have had years of experience in designing and making of special tools and machinery and are equipped to act in an advisory capacity to their customers. Mr. Grau was for eight years superintendent of production at the Union Tool Company of Los Angeles where he started as tool designer. For the last two years he has been superintendent of production at the Doheny-Stone Drill Company, Torrance, California.

B. B. Bros.
ALL STEEL HAND HOIST
TRADE MARK
SEATTLE, U.S.A.

Quick, Convenient Power in Small, Compact Weight

An indispensable piece of field equipment, say producers who use the B. B. Bros. Hand Hoist every day. It saves them time and money on emergency jobs of hoisting and pulling because it is portable and quickly set up. Weighs only 110 lbs. yet has tremendous power. Positive internal brake gives you absolute control.

"The Strongest Geared Power for its Weight in the World."

Weight 110 lbs.

Capacity FIVE TON STRAIGHT LINE

Size 16x17x13" High

Two Speeds 4 to 1 24 to 1

POSITIVE INTERNAL BRAKE

Construction Eight Pieces Electrical Steel Without Keys or Setscrews

PRICE $80

Steel Tail Hold Yoke $4 Extra. Truck Attachment Plate, $1 Extra.

5 TONS Capacity

Sold by
THE NATIONAL SUPPLY COMPANIES

DON'T BUY

Equipment that JARS—BUMPS or VIBRATES, Unless it is bolted together with

KEEP TIGHT COLUMBIA LOCK NUTS

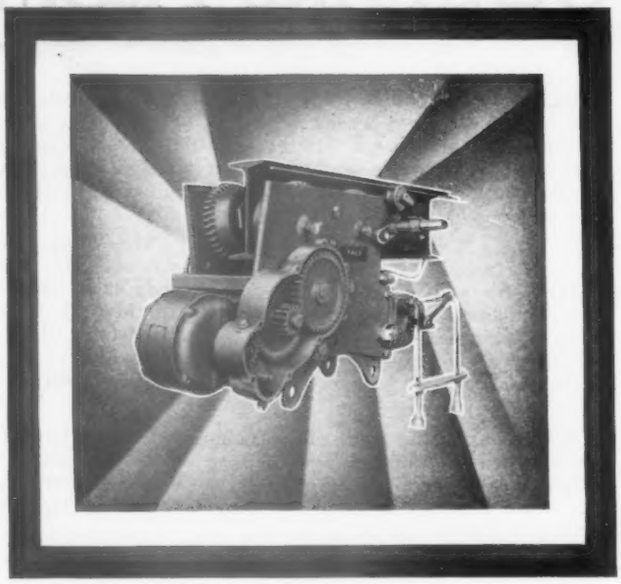
COLUMBIA LOCK NUTS are *COST SAVERS TROUBLE SAVERS* and are worth their weight in GOLD when Equipment

DON'T SHAKE LOOSE

Insist on having them on what you BUY and in your STOCK ROOM for *repairs.*

We gladly furnish samples to try.

COLUMBIA NUT & BOLT CO., INC.
Bridgeport, Connecticut
Makers of Lock Nuts since 1900.



TRADE YALE MARK

MOTOR DRIVEN TROLLEYS

For the economical transveying of materials from one department to another — the Yale Motor Driven Trolley is a valuable asset. Yale high quality throughout assures continuous and dependable service.

THE YALE & TOWNE MFG. CO.
STAMFORD, CONN., U. S. A.
Canadian Branch at St. Catharines, Ontario

YALE MARKED IS YALE MADE

YALE Hoisting and Conveying Systems

SQUEAKS FROM THE BULL WHEEL

Accused—My counsel is ill; can my case be put off for a week?

Judge—But you were caught with your hand in a man's pocket. What defense can your counsel give for that?

Accused—That is what I want to know.

Millie—So you went out to dinner with him again last night. Same old menu, I suppose?

Tillie—Yes, bologna, applesauce and razzberries!

Johnny was in the habit of swearing mildly when anything happened that did not please him. One day the minister heard him and he said: "Johnny, don't you know that it is wrong to swear? Why, every time I hear you swear a cold chill runs down my back."

"Gee," said Johnny, "if you had been at my house the other day when my dad caught his nose in the clothes wringer, you'd have froze to death."

Judge: The policeman says that you were traveling at a speed of sixty miles an hour.

Prisoner: It was necessary, Your Honor, I had stolen the car.

Judge: Oh, that's different. Case dismissed.

First Collegian: Let's sell the old flivver and buy an aeroplane.

Second Collegian: Naw, how could people read the wisecracks when we're up in the air?

Ma—I want to speak to you about Junior. He doesn't like to work and gets that Jones boy to do everything for him. I don't want to have a lazy, good-for-nothing son.

Pa—Lazy? My stars! He shows executive ability.

That girl made an idolator out of me.

How's that?

She put on cloth of gold stockings so we'd worship the golden calf!

Tommy, can you tell me one of the uses of cowhide?

Er, yessir. It keeps the cow together."

"Hello; hello; is this you, Mac?"

"Aye."

"Is this MacPherson I'm talking to?"

"Aye; spe'kin'."

"Well, Mac, it's like this: I want to borrow fifty dollars—."

"All right. I'll tell him as soon as he comes in."

Billy, if your father's car made twenty miles to the gallon of gas and he bought ten gallons, how far could he drive?

Not an inch; Ma drives our car!

"Are you wearing spectacles, old man?"

"Yes. Through cross-word puzzles I've contracted an optical defect. One eye travels vertically and the other horizontally."

Plumber. "I've come to fix that old tub in the kitchen."

Youngster: "Mama, here's the docto to see the cook."

Cop: "Who was driving when you hit the car?"

Drunk (Triumphantly): "None of us; we were all in the back seat."

The prosecuting attorney had encountered a rather difficult witness. At length exasperated by the man's evasive answers, he asked him whether he was acquainted with any of the jury.

"Yes, sir," replied the witness; "more than half of them."

"Are you willing to swear that you know more than half of them?" demanded t he man of law.

The other thought quickly. "If it comes to that," he replied, "I am willing to swear that I know more than all of 'em put together."

Mr. Smith: "How did you cure your wife of her antique craze?"

Mr. Brown: "Oh, I gave her a 1907 model automobile for her birthday."

"Quiet, dear, the sandman is coming."

"Okay, mom, a dollar and I won't tell pop."

A celebrated violinist was urged to play his fiddle at one of those high tone affairs on Park Avenue. "How much would you want?" they asked him.

"Five hundred dollars is my price," he replied stiffly.

"Of course, you understand," said the hostess, "that you will not mingle with the guests."

"Oh, in that case," was the retort, "I'll do it for four hundred."

"I vish I vas as religious as Abie."

"And vy?"

"He clasps his hands so tight in prayer, he can't get them open ven der collection box comes aroundt."

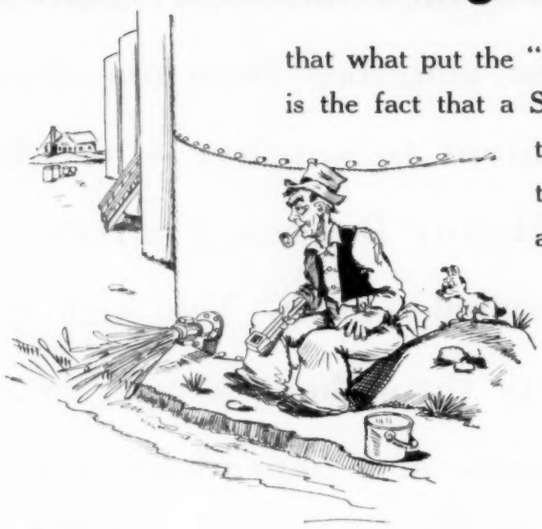
Cop (to motorist): "Hey, you can't park next to the fire hydrant."

Motorist: "Oh, yes, I can. This car is on fire."

Judge: "Are you trying to show contempt of this court?"

Lawyer: "No, I'm trying to conceal it."

Old Kon Says—

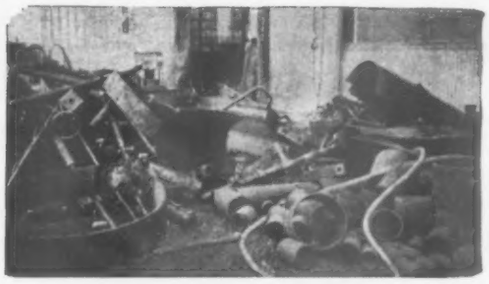


that what put the "ire" in Ireland is the fact that a Scotchman can treat with Kontol as well as anybody.

THE KONTOL CO.
10th Floor Santa Fe Bldg., Dallas, Texas

KONTOL

For the Treatment of Oil Emulsions



Just junk? or can it be salvaged?

EQUIPMENT covered with heavy coatings of oil and muck often looks ready for the scrap heap when actually it is worth repairing. But before proper inspection can be made, cleaning is necessary.

Heretofore, this has meant long hours of tedious, costly hand labor with gasoline or other distillates. But no longer. For now a short soak in an Oakite cleaning solution removes every trace of muck without hand scrubbing. Valves, fittings, bits, fishing tools and other parts are cleaned in quantity—made ready for repairs in a small fraction of the time formerly required.

Salvage operations are on a new efficiency basis.

Our booklet "Oakite in the Oil Industry" goes into details. Let us send you a copy.

Manufactured only by

OAKITE PRODUCTS, INC., 38G Thames St., New York, N. Y.

Oakite Service Men, cleaning specialists, are located at

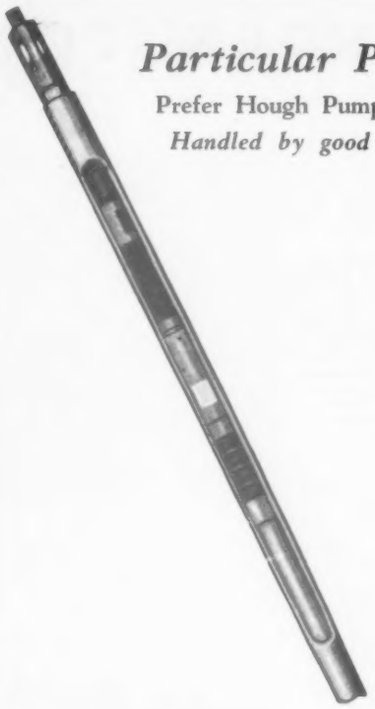
Albany, N. Y., Allentown, Pa., *Atlanta, Altoona, Pa., Baltimore, Battle Creek, Mich., *Boston, Bridgeport, *Brooklyn, N. Y., Buffalo, *Camden, N. J., Charlotte, N. C., Chattanooga, Tenn., *Chicago, *Cincinnati, *Cleveland, *Columbus, O., *Dallas, *Davenport, *Dayton, O., Decatur, Ill., *Denver, *Des Moines, *Detroit, Erie, Pa., Fall River, Mass., Flint, Mich., Fresno, Calif., *Grand Rapids, Mich., Harrisburg, Pa., Hartford, *Houston, Texas, *Indianapolis, *Jacksonville, Fla., *Kansas City, Mo., *Los Angeles, Louisville, Ky., Madison, Wis., *Memphis, Tenn., *Milwaukee, *Minneapolis, *Moline, Ill., *Montreal, Newark, N. J., Newburgh, N. Y., New Haven, *New York, *Omaha, Neb., *Oakland, Cal., *Oklahoma City, Okla., *Philadelphia, Phoenix, Ariz., *Pittsburgh, Pleasantville, N. Y., Portland, Me., *Portland, Ore., Poughkeepsie, N. Y., Providence, Reading, Pa., Richmond, Va., *Rochester, N. Y., Rockford, Ill., *Rock Island, Sacramento, Calif., *San Francisco, *Seattle, Springfield, Mass., South Bend, Ind., *St. Louis, *St. Paul, Syracuse, N. Y., *Toledo, *Toronto, Trenton, *Tulsa, Okla., Utica, N. Y., Vancouver, B. C., Williamsport, Pa., Worcester, Mass.

*Stocks of Oakite materials are carried in these cities.

OAKITE

TRADE MARK REG. U.S. PAT. OFF.

Industrial Cleaning Materials and Methods

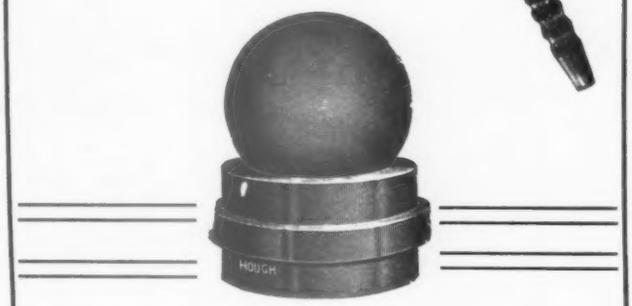


Particular Producers

Prefer Hough Pumping Specialties.
Handled by good supply stores.

Huf-Duo Pump

Unequalled as a sand-fighter — proclaimed the best dual-purpose pump.



A BALL & SEAT *for every Pumping Condition.*

STEELEX
For use where excessive sand is troublesome.

REPELEX
Non-Corrosive — use where acid is present.

BRONZEX
For use where lodestone is present.

COMBINEX
For use where lodestone and sand are both present.

The Charles N. Hough Manufacturing Co.
FRANKLIN, PENNSYLVANIA

INDEX TO ADVERTISERS

Acme Fishing Tool Company.....244
Ajax Iron Works.....112-113
Alco Oil Tool Company..... 36
Allis Chalmers Manufacturing Co. ...
Allsteel Products Company.....225
Alten's Foundry & Machine Works... 31
Aluminum Company of America.....
Amerada Petroleum Corporation.....247
American Association of Petroleum Geologists .....
American Cable Company .....
American Iron & Machine Works....205
American Hammered Piston Ring Co.
American Meter Company .....
American Roller Bearing Company...169
American Steel Works .....
American Steel & Wire Company..... 89
American Tank Company .....
American Telegraph & Telephone Co.
American Well Works 246
Andrews Steel Company.....189
B. K. Appleman 35
Axelson Machine Company..Second Cover

Baash-Ross Tool Company 94-95
Baker Oil Tools, Incorporated.....
William S. Barnickel & Company....235
Barrett Company .....
Bartlett-Hayward Company 189
Beaumont Iron Works .....
Beebe Brothers 255
Bessemer Gas Engine Company.....
Bethlehem Steel Company 137
Black, Sivalls & Bryson.....Insert
Blackor Company .....
Braden Steel & Winch Company.....
Braden Steel Corporation 157
The Brewster Company..... 26
Bridgeport Machine Company.....90-91
Bristol Hotel .....
Broderick Bascom Rope Company.... 29
Buckeye Traction Ditcher Company..229
Buffalo Bolt Company.....249
Barkley & Meadows 116
Burns Tool Company .....
Butler Manufacturing Company..... 27
Byron Jackson Company 6

Cameron Iron Works 86-87
Caterpillar Tractor Company 107
Central Alloy Steel Corporation 37
Chain Belt Company .....
Chicago Bridge & Iron Works.....163
Chicago Pneumatic Tool Company....
Clark Brothers Company 23
Coastal Oil Finding Company.....248
Colona Manufacturing Company.....
Columbia Nut & Bolt Company.....255
Columbian Steel Tank Company.....180
Continental Motors Corporation.....
Continental National Bank.....233
Continental Supply Company..... 13
Fred E. Cooper .....
Cooper-Bessemer Corporation 74-75
Crescent Belt Fastener Company.....
Cyclone Fence Company.....

Darling Valve & Manufacturing Co... 24
E. M. Dart Manufacturing Company.
Doheny Stone Drill Company.....78-79
Donovan Boiler Works 19
Drane-Humphreys Company 22
Dresser & Gorton, Inc. .....
S. R. Dresser Manufacturing Co. 76
Driftmeter, Incorporated .....
The Drillometer Company .....

Eason-Therolf Tool Company.....241
Easton Car & Construction Company..139
Economy Pump Company .....
Economy Pump & Oil Tool Company.
E. H. Edward Manufacturing Co. ...151
Electric Controller Manufacturing Co.
Elliott Core Drilling Company.....
Emsco Derrick & Equipment Company
Expert Mechanic Shop 248

Fenwick-Reddaway Manufacturing Co..251
First National Bank, Houston..... 70
Fort Worth Laboratories 248
Franklin Valveless Engine Company... 17
Frederick Iron & Steel Company.....
Frick-Reid Supply Corporation.....209

Garlock Packing Company .....
Gaso Pump & Burner Manufacturing Company 3
Gates Rubber Company .....
General Electric Company 39
General Paint Corporation 197
Fred I. Getty 18
Gibson & Johnson, Inc. 249
B. F. Goodrich Rubber Company.....

H. P. Gott Manufacturing Company..
Grant Oil Tool Company .....
Grasselli Chemical Corporation.....198
Gray Tool Company 153
Greene, Tweed & Company 242
Guiberson Corporation 100-101
Gulf Refining Company 159
Gulf States Utilities Company..... 73

Halliburton Oil Well Cementing Co...217
Hanlon-Waters, Inc. .....
Happy Belting Company .....
Hardway & Cathey 248
Haynes Stellite Company .....
Harrisburg Pipe & Pipe Bending Company .....Front Cover
Hazard Wire Rope Company..... 21
C. M. Hetter Sons & Company.....
Hercules Motors Corporation.....
Hercules Supply Company .....
Hercules Tool Company 103
Heydrick Mapping Company.....242
Hill, Hubbell & Company.....197
Hilton Hotels .....
Hinderliter Tool Company 144
Hirsch, Brown & Susman.....248
George O. Hollow Company.....
Charles N. Hough Manufacturing Co..257
Howard Smith Company .....
Houston Engineers .....
Houston National Bank .....
Hughes Tool Company.....Fourth Cover
Humble Oil & Refining Company....
Hyatt Roller Bearing Company.....

Christian Iden 248
Imperial Royalties Company .....
Ingersoll-Rand Company 177
International Derrick & Equipment Company 4
International Mineral & Metals Corp..
International Storage & Warehouse Company .....
International Supply Company.....143

Byron Jackson Company..... 6
Jarecki Manufacturing Company.....
Jensen Brothers Manufacturing Co....121
S. M. Jones Company .....
Jones & Laughlin Steel Corporation..219
Johnson Formation Testing Corporation

Kerotest Manufacturing Company.... 30
Kirk-Morrow Iron Works Company...245
Kontol Company 256

Landis Machine Company 5
Larkin Company 38
Layne & Bowler Company 148-149
Le Bus Rotary Tool Works .....
Lincoln Electric Company .....
Linde Air Products Company.....
Link Belt Company .....
Lone Star Gas Company 215
Lucey Products Corporation.....
Lufkin Foundry & Machine Company..173

MacClatchie Manufacturing Company.
Maintenance Engineering Corporation.246
McCollum Exploration Company.....248
J. H. McEvoy & Company.....223
McIntosh & Seymour 133
McMan Oil & Gas Company.....250
Majestic Hotel 248
Maloney Tank Manufacturing Co. ...232
Mark Twain Hotel .....
Martin-Decker Corporation 134
Martin Wagon Company 233
Metric Metal Works .....
Mid-Continent Oil & Gas Assn. ...108-109
Mills Alloys, Inc. 211
Mills Iron Works .....
Miller Combination Bailer & Pump Co.136
Mine Safety Appliance Company.....237
Robert J. Miller Company 110
Lee C. Moore & Company.....Insert
Munger Oil Information Service.....
Murray Tool & Supply Company.....

National Petroleum Engineering Corp.
National Supply Companies 40
National Tank Company.....Third Cover
National Tool Company .....
National Tools & Metals, Inc. .....
National Transit Pump & Machine Co.. 81
National Tube Company .....
Naylor Pipe Company 126
New Jersey Asbestos Company.....
Norvell-Wilder Supply Company.....184

O. C. S. Manufacturing Company..... 84
Oakite Products, Inc. 257
O'Brien Steel Construction Company.249
Oil Equipment & Engineering Exposition 157
Oil Well Supply Company 42
Oil Well Improvement Company.....
Oklahoma Portland Cement Company..241
Oxweld Acetylene Company..... 32

Page Steel & Wire Company.....
Parkersburg Machine Company.....250
Parkersburg Rig & Reel Company..161
Patterson-Ballagh Corporation 82-83
Peden Company .....
Penberthy Injector Company.....
Petroleum Engineering University....
Petroleum Rectifying Company..... 69
Petroleum Equipment Company.....
Petroleum Producers Company.....251
Pittsburgh-Des Moines Steel Co. ....
Pittsburgh Equitable Meter Company.
Pittsburgh Screw & Bolt Corporation.
Pittsburgh Steel Products Company...125
Pittsburgh Valve, Foundry & Construction Company 171
Pratt & Whitney Company.....

Quaker City Rubber Company.....
Quasi-Arc, Inc. 12

Reed Roller Bit Company .....
Reading Iron Company 140
Regan Forge & Engineering Company. 98
Joseph Reid Gas Engine Company....193
Remington-Rand Business Service....
Republic Supply Company..... 93
Republic Iron & Steel Company.....227
Resistcor Engineering Corporation...
Rice Hotel .....

San Angelo Board of City Development 165
Shaffer Specialty Company.....
Shaffer Tool Works .....
Sheldon Machinery Company.....221
Sinclair Refining Company.....
Skelly Oil Company 25
S-K-F Industries 16
A. O. Smith Corporation 20
Smith Separator Company .....
H. C. Smith Manufacturing Co. ....
Howard Smith Company 14
South Chester Tube Company .....
Southern Engine & Pump Company...
Southern Mill & Manufacturing Co...
Spang & Company 8
Spang, Chalfant & Company..... 15
Specialty Oil Tool Company.....167
Eugene C. Stacy 251
Staley, Wynne & Company.....237
Standard Supply & Hardware Co. ...246
George Steiner 248
Jesse R. Stone 248
Stoody Company .....
Sullivan Machinery Company..... 28

Templeton, Kenley & Company.....
Texas Creosoting Company.....215
Texas Cyclone Fence Company.....
Texas Iron Works 11
Thrift Corporation 115
Timken Roller Bearing Company.....
Titusville Iron Works 33
Triad Products Company .....
Trimont Manufacturing Company....
Tyler Tube & Pipe Company.....251

Union Carbide & Carbon Corporation.
Union Wire Rope Corporation 231
United Tractor & Equipment Corp. ...

Vez Company .....
Vickers Machine Works 239
Victaulic Company 9
Victor Balata & Textile Belting Co. .. 10
Vulcan Steel Tank Corporation .....

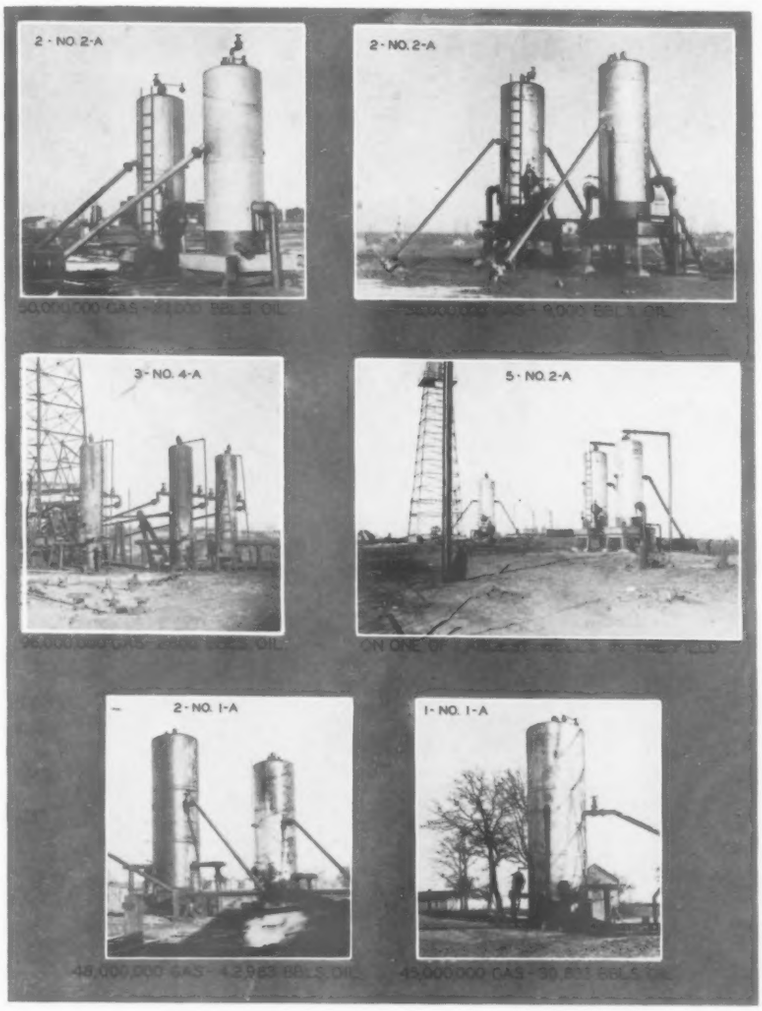
Wagner Electric Company .....
Waukesha Motor Company.....104-105
C. W. Webster 248
Westcott Valve Company.....
Westinghouse Electric & Manufacturing Company 243
West Texas Utilities Company..... 34
Calvin Wheat Studios 248
W. E. A. Wheeler & Company.....248
Wickwire-Spencer Steel Company.....
Wico Electric Company 252
Wiemann-Kemmerer-Wright, Inc. 7
J. H. Williams & Company.....
Williams Brothers, Inc. 187
Wilson Supply Company 244
Wilson-Snyder Manufacturing Co. ...
W-K-M Company 201
Word Specialty Manufacturing Co. ..
T. T. Word Supply Company.....
Worth Hotel .....
Wright Manufacturing Company.....
Wyatt Metal & Boiler Works..... 97

Yale & Towne Manufacturing Co. ...255

Every precaution has been taken to insure accuracy in listings in this Index to Advertisers, but last minute changes may result in omissions or erroneous listings for which we ask your indulgence. This index is for the convenience of readers and we do not assume liability for improper listings

National Separators

Construction throughout designed to accomplish results desired. They have withstood the extreme service given them in the Oklahoma City field.



Installations of our No. 1-A, 2-A and 4-A Separators in the Oklahoma City Field. These separators are our standard types with no special construction and the production figures above are what they handled in a 24-hour period. 75% of the new Separators in the Oklahoma City field are Nationals.

Valves— Floats— Connections are all designed especially for the purpose of securing positive and sensitive control at all times.

NATIONAL OIL & GAS SEPARATORS are built with the aim to serve and secure the results that make maximum conservation possible.

After ten years of experience in manufacturing welded vessels for oil field use, the management of the National Tank Company did not hesitate to give to the purchaser an unqualified guarantee on the workmanship, strength, performance and efficiency of every separator they manufacture.

By using National Separators of welded construction, you are insured against seepage, leaking rivets, poorly caulked joints and repair jobs on account of abuse in handling.

Each and every separator manufactured and sold by this Company is tested with cold water to its guaranteed test pressure. Each separator bears a name plate stamped with steel dies as to its guaranteed test pressure and its guaranteed working pressure.

Let us tell you about the advantages of National Separators.

NATIONAL TANK COMPANY

TULSA, OKLAHOMA

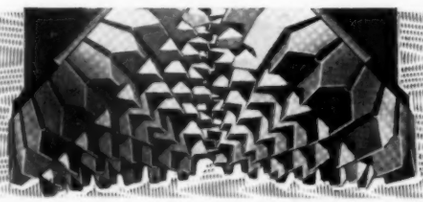
You will have made "MORE HOLE"

when the tour is over -if you are running

HUGHES Rock Bits and Cones

HUGHES TOOL COMPANY

Service Plants
Los Angeles, Calif.
Oklahoma City, Okla.

Main Office and Plant
HOUSTON, TEXAS

Export Office
Woolworth Building
New York City, N. Y.